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The

ILLINOIS

Medical Journal

VOL. 84 NO. 3

September, 1943

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OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY

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The Illinois Medical Journal

September, 1943

VOL. 84, NO. 3

Official Journal of the Illinois State Medical Society

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Editorials

THE ARMED FORCES NEED MORE PHYSICIANS

The Directing Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians held a conference in Washington on July 31, with the War Participation Committee of the American Medical Association, and Mr. Paul V. McNutt, Chairman of the War Manpower Commission, to consider the continued requests of the Army and Navy for additional physicians for the Armed Forces. It was generally agreed that the request for six thousand physicians before the end of 1943 was necessary in the present war program, and it was unanimously agreed that every effort would be made to get the desired personnel at the earliest possible moment.

This information was immediately transmitted through the Procurement and Assignment Service to the state chairmen and their committees, urging them to render all possible assistance in carrying out the present program. State chairmen and their respective committees were urged to make a re-appraisal in each county in their states, to make additional physicans of the desired age available and report same promptly to the Directing Board, and the proper War and Navy Department Officer Procurement Services.

It was stated that many of the medical schools and hospitals throughout the country can release additional instructors and staff members without seriously impairing their work. The need, as shown to those attending the conference is real, and every effort will be made to get the required medical personnel at an early date. It was stated that if a sufficient number of physicians under the age of 45 could not be cleared through the Procurement and Assignment Service, proper legislation would be enacted so that the needs can be met through the Selective Service System, but it is the opinion of the Procurement and Assignment Service personnel, that this will not be necessary.

Many of the younger physicians who have been previously rejected for service on account of minor ailments, are to be re-examined and most likely many will be commissioned at an early date.

Physicians in various communities will no doubt be asked to enlarge their territory and care for the practice of physicians in smaller towns nearby, who may be commissioned in the medical corps.

There is another trust placed in the hands of the medical profession itself, and the need

should be completely supplied voluntarily, without special legislation being enacted. Medical officers in the Armed Forces have played an important part in the success of recent months, and with the probability of an early invasion of the European continent, a sufficient number of physicians must be available to care for all possible needs of those officers and men carrying out these plans.

County committees on Procurement and Assignment Service for Physicians, are urged to notify the State Chairman at the earliest possible moment, of physicians under the age of 45 who may be made available in their respective counties.

WAR TIME MEDICINE

It is quite obvious to all that with approximately 50% of the physically fit physicians of the United States with the Armed Forces, those who remain at home to carry on in the giving of medical care to the civilian population, caring for the needs of industrial and ordnance plants, and the other essential duties of their profession, must work longer hours and perhaps not give the luxury type medical care enjoyed by many people in recent years.

There are many elderly physicians throughout the country who were either on part-time duty or had retired from practice before the outbreak of war, but who are now working full time in the effort to do their bit as a patriotic deed, and do many things in medicine formerly left to the younger men. Then there are many who were formerly classed as specialists in one of the many branches of medicine, but who at the present time have joined the large group of general practitioners in caring for many ailments they had not previously encountered in recent years.

A letter is published in this issue of the Illinois Medical Journal in the correspondence section, as submitted by a man whose name is well-known throughout the country for his accomplishments in medicine which we hope will be read by every physician in Illinois as it deals with a highly important subject. It is generally known that the physicians today are carrying a heavy load, are working longer hours, and perhaps see more paients during the month than

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had previously been the case, yet but few of these men are complaining and are willing to do their part.

There are many things the laity can do to help the busy doctor, yet when any emergency arises, no physician who is able to attend the case will refuse to do what is asked of him. A few isolated reports have been received recently in the effort to show that the medical profession will not accept many emergency calls, and in most instances when the proper investigation is made, it will be found that the family failed to call the physician early because they thought he would not make the necessary call, and no effort was made at the time to verify their opinion.

Much time of the physician is wasted each day when people call him from other duties to tell their long list of troubles over the phone, even though they expect him to make a home visit, or see them in the office, perhaps the same day. Many times patients or their families insist on talking to the doctor when the office assistant could easily take the message. For many years the Illinois State Medical Society has been urging business and professional men to have the periodic check-up with excellent response on the part of many from these groups. It is possible in most instances for those having had this service under normal times, to have it in war time, provided they make an appointment for the check-up at a time to suit the physician's convenience.

The contribution of those physicians remaining at home in most instances, is highly essential, and it is one of the responsibilities of the Procurement and Assignment Service to see that an adequate number of physicians remains at home for care of essential workers and civilians. At the outbreak of war, surveys showed that physicians resided at 862 places in Illinois, and although this may not be true at the moment, efforts have been made to protect the civilian groups in each community even though many younger physicians have been taken from small towns and it is impossible to get a replacement for the duration. Efforts have been made, however, to see that the health interests of these people can be cared for, through the efforts of physicians in nearby places who can give war time adequate care, although perhaps not the luxury type previously available everywhere.

LAWMAKERS CONFER WITH THE HOME FOLKS

An unusually interesting conference was held in Minneapolis on August 16 and 17, when approximately 20 members of the U. S. Senate and House of Representatives from five Northwestern States, who are on vacation, met with the home folks to get their respective opinions of what has been going on at the Nation's capitol. Many representatives of agriculture, dairy interests, retailers, wholesalers, dealers in many other types of commodities, along with members of the medical, dental, pharmaceutical and hospital groups were present to give first hand information as to their respective opinions on enacted and proposed legislation and the effects these laws have on their business.

All day long the legislativemen listened patiently to the reports from the many groups, the reports being presented in writing, and copies were given to the Solons for further study before going back to Washington.

On the evening of the 16th, medicine was well represented by many hundreds of members of the medical, dental and pharmaceutical professions, with each group having a spokeman to present their story.

A. W. Adson of Rochester, was the spokesman for the medical group and in a highly commendable manner told the lawmakers that medicine desires only to continue to practice medicine in a democratic country in a democratic way; the medical profession is not asking for special privileges, but hopes they may continue to practice individually and without political dictation or supervision. Dr. Adson referred to the well-known fact that medical care given in this country is superior to that given in any other country in the world, and that in many of the other countries medicine has been under political supervision for varying periods of years.

Reference was made to the unusual developments coming from intensive research in this country in recent years, and the effect this has had on the health of the United States Army. Our medical educational institutions are turning out each year better prepared young physicians to carry on the work. With nearly 50,000 physicians in service with the armed forces of the United States, their work has received much commendation from the high officers of the troops which have engaged in the several suc-

cessful campaigns. To verify this statement one needs only to read the recent reports given by the Surgeon General of the U. S. Army who was in North Africa at the time the axis troops were driven from that continent. Surgeon General Norman Kirk told of the many compliments paid to the work of the medical officers of the army, and the statement made by General Eisenhower that without this highly trained medical personnel, the successful conclusion of the campaign would not have been possible.

With nearly one-half of the able-bodied physicians of the country now in service, having left their homes, families and practice as a patriotic duty, would it be fair to this large group to have the Wagner-Murray Senate Bill 1161 enacted during their absence and without giving them the opportunity of registering a protest at such a revolutionary change in the method of providing medical care for the American people under Federal supervision?

Dr. Adson stated that medical problems at present time can be well considered under three categories. Those relative to providing medical care for those perfectly able and willing to pay for the services received; those in the lower income groups yet being able to pay for their care, and who are receiving adequate care. The third, that group of people unable to pay for their medical care, many of whom are receiving medical care under one of the fund-matching plans, and those whose care is, and always has been supplied as the duty of overseers of the poor, or some other similar agency.

With so many physicians with the armed forces, war-time medical care must naturally be somewhat different from the former luxury services which many people have demanded and received.

Dr. Adson referred to the well-known fact that medical problems which come before Congress are referred to a number of different committees, when in his opinion there should be a committee on health in both Houses to which these many problems could well be referred for study and subsequent recommendations. He likewise called attention to the fact that the medical profession for many years has strongly urged that there be established in Washington a Bureau of Health, with a physician as Secretary, and he should be a member of the President's Cabinet.

In their consideration of health problems, the legislators should consider first of all, economy, maintenance of free enterprise, and the sick should by all means have free choice of physicians to care for them.

Physicians throughout the country should read the analysis of Senate Bill 1161, the Wagner-Murray bill, as published in the June 26, 1943 Journal of the American Medical Association. Another excellent analysis of the bill is contained in the recent pamphlet issued by the National Physicians Committee, entitled "Abolishing Private Medical Practice, or $3,048,000,000.00 of Political Medicine Yearly in The United States." These analyses show that under this bill it is proposed that the authority of supervising medical practice be placed in the hands of the Surgeon General of the United States Public Health Service. He would have the power and authority to:[1]

1. Hire doctors and establish rates of pay possibly for all doctors.
2. Establish fee schedules for services.
3. Establish qualifications for specialists.
4. Determine the number of individuals for whom any physician may provide service.
5. Determine arbitrarily what hospitals or clinics may provide services for patients.

A complete analysis of the Wagner-Murray Senate Bill 1161 would require so much space in the Journal that we would be compelled to leave out other essential material, but we respectfully urge every physician to read the analyses as published in the June 26, '43 Journal of the A.M.A., and also the brochure referred to above, as published by the National Physicians' Committee, and sent to the physicians of the entire country. After reading these articles and analyses, physicians should confer with their Senators and Representatives, tell the effects, as they see them, such a revolutionary change in medical care would have not only on the services rendered, but what is more important, the effects it might have on the sick who have always had the right to select their own physician, and he being permitted to use his own judgment entirely, on the type of service to be rendered. At this time with increasing costs of operating our Government, the continual search for new taxes, the annual deficit, and the constant desire of many people to see the budget once more balanced

1. N.P.C. — A factual analysis of the Medical and Hospitalization provisions of the Wagner-Murray Senate bill 1161.

after the present conflict is ended, does it seem desirable to add more financial burdens on the American people by the adoption of this type of experiment?

The Minnesota Conferences was probably the first of its kind to be scheduled anywhere in the country, and seems perfectly natural that legislators should endeavor whenever possible, to get the viewpoints of their constituents, and seek their guidance especially when legislation not directly connected with the war effort is to be considered. If this is done rather generally throughout the country, it seems quite probable that there will be less confusion and dissatisfaction later on.

THE MURRAY-WAGNER-DINGELL BILLS

Reference was made in the preceding editorial to the analyses of these companion bills introduced in the Senate by Senators Wagner and Murray, and in the House of Representatives by Congressman Dingell.

Since the editorial was submitted for publication in this issue of the Illinois Medical Journal, the Committee on Medical Economics submitted its data for the September Journal and the material is that referred to as the Analysis by the National Physician's Committee for the Extension of Medical Service, with comments by the Department Editor. We would therefore urge that every reader of the Illinois Medical Journal carefully read this interesting article, then write the Senators and Congressmen at Large as well as to the Congressmen representing the individual districts.

A special bulletin will be received by Illinois Physicians from the Legislative Committee on the same subject and with it a list of Congressmen from the various districts of the state, the Congressmen at Large and the United States Senators from Illinois.

This is the proper time to get in touch with these officials and submit your comments on the highly important subject.

Beautiful young people are works of nature, but beautiful old people are works of art. — *Ghost Town News.*

THE TREATMENT OF ANEMIA

Today the adequate treatment of the anemic patient depends to a large degree upon the proper classification of the hemopoietic defect. A thorough understanding of these defects and simple measures by which they can be recognized is a necessity. At present, the state of our knowledge of the underlying physiology of the hemopoietic system is such that if utilized, the large majority of the cases with anemia can be successfully handled by the general practitioner and only in the exceptional case will the additional experience of the hematologist be necessary.

For example, the erythrocyte maturing factor is formed by the interaction of the intrinsic factor in the stomach on the extrinsic factor contained in the protein of the diet. After formation it is absorbed in the upper part of the gastro-intestinal tract, transported to the liver, and there stored until needed. Deficiency of intrinsic factor results in the true Addisonian pernicious anemia. Deficiencies of extrinsic factor are occasionally encountered in individuals on very prolonged low-protein diets. Disturbances in absorption are seen in such conditions as sprue and other chronic diarrheas. Deficiencies of erythrocyte maturing factor result in a macrocytic hyperchromic anemia. The treatment of these types of anemia should be directed in two ways. By a careful survey of the clinical factors present, the exact disturbance in the chain of E. M. F. formation can be found and therapy instituted. If, for instance, extrinsic factor is missing this can be applied as protein. If a chronic diarrhea is present therapy should be directed here. In all cases in the beginning, however, E. M. F. should be supplied as liver extract. The parenteral route is much to be preferred and as much liver extract should be given as often as is necessary to produce and maintain red-cell levels at 4.5 to 5 million. Twenty units or more per day may be necessary in an occasional case.— *Marion F. Beard, M. D., Kentucky Medical Journal.*

When the tyrant has disposed of foreign enemies by conquest or treaty, and there is nothing to fear from them, then he is always stirring up some war or other, in order that the people may require a leader.—*Plato.*

Correspondence

A RUMOR RESPONSIBLE FOR TRAGEDIES

To The Editor:

The idea now generally current that doctors in civilian life are so busy and overworked that they should not be called except in grave sickness or serious emergency is doing the public definite harm. For many years the Illinois State Medical Society has striven to educate the public to call the doctor early so that if the condition was serious treatment could be started at once and if not serious, measures could be instituted to prevent its becoming so. Since Pearl Harbor we have allowed some one to completely neutralize that idea by telling the public not to call the doctor. He is too busy; he is overworked; he isn't to be bothered with trifles; his strength must be conserved; and so forth and so on. This movement did not originate with the profession — not in Illinois at least.

In one county from which an unusually large number of doctors had gone into the armed forces a survey was recently conducted by the U. S. Public Health Service and the officers of our state society. This showed that in spite of the fact that a large percentage of the doctors had gone into the armed forces, those remaining in civilian practice were rendering adequate care — when given the opportunity. It was found that one patient barely survived a ruptured appendix because the family had delayed calling the doctor for several days. They had refrained from calling him because of this propaganda that doctors should not be asked to make calls except in dire emergencies and the family had not recognized the grave nature of the illness until it was almost too late. A case came under my observation in Chicago where the family waited several days before calling the doctor and the patient died of an intestinal obstruction. It is the rumor and not the shortage of doctors that is responsible for such tragedies.

The patient is seldom able to properly evaluate his own symptoms and safely decide when he should or should not call a doctor; but even over the telephone the physician can often decide whether a case sounds so serious that it should be seen at once or can safely wait until tomorrow. Many times he can suggest measures that will make the patient more comfortable and the family easier mentally until the patient can be seen.

Of course the doctors are hard worked and the mortality, particularly among older physicians, who are trying to work as they did in earlier years, will undoubtedly be very high. But our confreres in New Guinea and on the other war fronts are also hard worked and will suffer many casualties. Our contribution, while less spectacular, may be almost as arduous and quite as important.

This rumor will not stop the psychoneurotic from making telephone calls or office visits. It will discourage only people who are really in need of a physicians services. Thus the rumor, no matter how well meaning, does no good and much harm and should be discouraged in every possible way.

MEDICINE AND THE WAR

A special feature of the Ninth Annual Meeting of the Mississippi Valley Medical Society to be held in Quincy, Ill., Sept. 29 and 30, will be an All-Chicago Symposium on "Medicine and

the War," on Wednesday evening Sept. 29. The following is the program arranged:

Presiding Officer, Lindon Seed, M.S., M.D., Chicago, Major, M.C., U.S. Army; Chief of Surgical Staff, Camp Ellis, Ill. Associate Prof. of Surgery, University of Illinois.

7:30 P. M. Warren H. Cole, B.S., M.D., F.A.C.S., Chicago, Prof. and Head of Dept. of Surgery, University of Illinois, "Some Important Differences Between War and Civilian Surgery."

8:00 P. M. Carl M. Peterson, M.D., Chicago, Secretary, Council on Industrial Health, American Medical Ass'n. "War Casualties and Industrial Rehabilitation."

8:30 P. M. H. L. Dolardl, M.D., F.A.C.P., Great Lakes, Ill. Captain, M.C., U. S. Navy, Senior Medical Officer, Ninth Naval District, "The Tasks of the Medical Department of the U. S. Navy in Global War." (Sound Movies)

9:30 P. M. Charles H. Phifer, M.D., F.A.C.S., Chicago, Chairman, 6th Service Command, Procurement and Assignment Service. "The Accomplishments and Difficulties Encountered by Procurement and Assignment Service."

Another interesting medical war-topic paper will be given on Thursday, Sept. 30 by Paul W. Greeley, A.B., M.D., F.A.C.S., Lieut.-Commander M.C., U.S. Navy Reserve, Chief of Plastic Surgery, U. S. Naval Hospital, Oakland, Calif., and Ass't. Prof. of Surgery and Chief, Division of Plastic and Reconstructive Surgery, University of Illinois. Dr. Greeley's paper is entitled "Some Personal Experiences in Current Military Plastic Surgery," and will be illustrated with movies.

SPECIAL NOTICE TO MEDICAL PROFESSION

At St. Elizabeth's Hospital, the Federal institution for the treatment of mental disorders, Washingon, D. C., fine opportunities for psychiatric residencies and rotating internships are open to recent graduates of medical schools; these residencies and internships rank among the best in the United States. The Institution has 7,000 patients including members of our armed forces who are casualties of the present war. In order that these men as well as civilian patients receive adequate care and treatment, it is necessary to recruit a number of Junior Medical Officers.

The rotating internship consists of 1 year of rotating service including medicine, surgery, psychiatry, laboratory, pediatrics (affiliation), and obstetrics (affiliation). Applicants must be fourth-year students in a Class A medical school or they must have successfully completed their fourth year of study in a Class A medical school subsequent to December 31, 1935. The duties of Junior Medical Officer (Rotating Internship) are those of an interne assigned to medical surgical, and laboratory services, and out-patient clinics.

A postgraduate internship of 1 year in psychiatry is offered to graduates of medicine who have already served an accredited rotating internship. Applicants must have successfully completed their fourth year of study in a Class A medical school subsequent to December 31, 1932, and they must have the degree of either B.M., or M.D. In addition, they must have successfully completed an accredited rotating internship of at least one year, except that applications will be accepted from persons now serving such internship. The duties of Junior Medical Officer (Psychiatric Resident) are those of a resident in the diagnosis and treatment of mental patients.

It is possible that women may be utilized in these positions. Appointments to the above positions will be made at various times during the year as vacancies arise. The positions pay $2,000 a year (plus $433 overtime pay). There are no age limits for these positions. No written test is required. Persons now using their highest skills in war work should not apply. Appointments in Federal positions are made in accordance with War Manpower Commission policies and employment stabilization plans.

The Commission would appreciate your bringing this information to the attention of qualified persons who you feel may be interested. An official announcement, amendment, and application forms are enclosed. Additional copies may be obtained at first- or second-class post offices, Civil Service Regional Offices, and the Commission.

By direction of the Commission:

Very respectfully,
Wm. C. Hull
Executive Assistant

Long ago was Gracchus slain,
Brutus perished long ago;
But the living roots remain,
Whence the shoots of freedom grow.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

The long looked for amendments to the Social Security Act have been introduced into the House and Senate by Senators Wagner and Murray and Representative Dingell.

It is very important that every physician read that portion which most directly interests hospitals and the medical and allied professions, therefore, that portion of the bill referring to hospitals and the medical and allied professions is given in full. Comment is hardly necessary because the bill is self explanatory and places in the hands of the Surgeon General complete control of the profession and the hospitals in the United States. It is true that under the provisions of the bill there is to be created a National Advisory Medical and Hospital Council, composed of sixteen members. However, the bill provides that various organizations may make recommendations, but the final appointment is left entirely in the hands of the Surgeon General.

It seems evident from the fact that labor has already okeyed and undoubtedly will sponsor the passage of this legislation — that it will take the most vigorous action on the part of the medical profession and the hospital associations to modify or defeat this bill.

The National Physicians Committee has already, inaugurated a program to acquaint the medical profession and the public as a whole with the dangers of this bill. It would seem at the present moment that all parties interested in the modifications or defeat of this bill should rally to the support of The National Physicians Committee in their efforts at this time.

EXCERPTS FROM HOUSE BILL 2861

This Bill was introduced by Representative Dingell on June 3, 1943 and was referred to the Committee on Ways and Means. An identical Bill was introduced in the Senate the same day by Senators Wagner and Murray. The Senate Bill was referred to the Committee on Finance.

"A BILL to provide for the general welfare; to alleviate the economic hazards of old age, premature death, disability, sickness, unemployment, and dependency; to amend and extend the provisions of the Social Security Act; to establish a Unified National Social Insurance System; to extend the coverage, and to protect and extend the social-security rights of individuals in the military service; to provide insurance benefits for workers permanently disabled; to establish a Federal system of unemployment compensation, temporary disability, and maternity benefits; to establish a national system of public employment offices; to establish a Federal system of medical and hospitalization benefits; to encourage and aid the advancement of knowledge and skill in the provision of health services and in the prevention of sickness, disability, and premature death; to enable the several States to make more adequate provision for the needy aged, the blind, dependent children, and other needy persons; to enable the States to establish and maintain a comprehensive publi cassistance program; and to amend the Internal Revenue Code."

In addition to the several suggested amendments to existing provisions of the present Social Security Act, the provisions of this Bill most directly and vitally interesting to hospitals and the medical and allied professions are those relating to medical and hospitalization benefits. These are included in Section 11 of the Bill, amending Title IX of the Social Security Act to read as follows:

"FEDERAL MEDICAL, HOSPITALIZATION, AND RELATED BENEFITS

"Primary Medical and Hospitalization Benefits

"SEC. 901. (a) Every individual, who is currently insured and has been found by the Board to be eligible for benefits under this title in a current benefit year,

shall be entitled to receive general medical, special medical, laboratory, and hospitalization benefits after the effective date of this title.

"Dependent's Medical and Hospitalization Benefits

"(b) Every dependent (as defined in title XI of this Act), who has been found by the Board to be eligible for benefits under this title in a current benefit year, shall be entitled to receive general medical, special medical, laboratory, and hospitalization benefits, after the effective date of this title, if such dependent (1) is the wife or child of an individual who is currently insured, and (2) is not entitled to receive such benefits under subsection (a) of this section in the current benefit year.

"Maximum Hospitalization Benefits

"SEC. 902. The maximum number of days in any benefit year for which any individual may be entitled to hospitalization benefit under section 901 shall be thirty: PROVIDED, HOWEVER, That when the Board of Trustees finds that moneys in the separate account established in accordance with section 913 are adequate, the Surgeon General and the Social Security Board may through joint rule and regulation increase the maximum to not more than ninety days for the following year.

"Administration

"SEC. 903. (a) The Surgeon General of the Public Health Service is hereby authorized and directed to take all necessary and practical steps to arrange for the availability of the benefits provided under this title and of services and reports required by the Social Security Board in the determination of disability under titles II and VIII of this Act.

"(b) In carrying out the duties imposed upon him by subsection (a) of this section, the Surgeon General is hereby authorized to negotiate and periodically to renegotiate agreements or cooperative working arrangements with appropriate agencies of the United States, or of any State or political subdivisions thereof, and with other appropriate public agencies, and with private agencies or institutions, and with private persons or groups of persons, to utilize their services and facilities and to pay fair, reasonable, and equitable compensation for such services or facilities, and for the Trust Fund to receive reimbursements for service rendered with respect to individuals in circumstances under which benefits are not authorized under this title, and to negotiate and periodically to renegotiate agreements or cooperative working arrangements for the purchase or availability of supplies and commodities necessary for the benefits provided under this title; and, after approval by the Social Security Board, to enter into contracts for such services, facilities, supplies, and commodities (subject to the limitations specified in subsection (g) of section 915).

"(c) The Surgeon General shall periodically notify the Board of obligations incurred under contracts entered into by him in accordance with the provisions of this section and to whom such obligations obtain. Thereupon the Board shall authorize and certify disbursements from the Trust Fund to meet such obligations, and such certified disbursements shall be paid from the Trust Fund.

"National Advisory Medical and Hospital Council

"SEC. 904. (a) There is hereby established a National Advisory Medical and Hospital Council (referred to as the 'Council') to consist of the Surgeon General as Chairman and sixteen members to be appointed by the Surgeon General. The sixteen appointed members shall be selected from panels of names submitted by the professional and other agencies and organizations concerned with medical services and education and with the operation of hospitals and from among other persons, agencies, or organizations informed on the need for or provision of medical, hospital, or related services and benefits. Each appointed member shall hold office for a term of four years, except that any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term, and the terms of office of the members first taking office shall expire, as designated by the Surgeon General at the time of appointment, four at the end of the first year, four at the end of the second year, four at the end of the third year, and four at the end of the fourth year after the date of the first meeting of the Council. Each appointed member shall receive compensation at the rate of $25 per day during the time spent in attending meetings of the Council and for the time devoted to official business of the Council under this Act, inclusive of travel time; and actual and necessary traveling expenses and per diem in lieu of subsistence, allowable in accordance with the Standardized Government Travel Regulations, while away from his place of residence upon official business under this Act.

"(b) The Council is authorized to advise the Surgeon General with reference to carrying out the provisions of this Act, including (1) professional standards of quality to apply to general and special medical benefits; (2) designation of specialists; (3) methods and arrangements to stimulate and encourage the attainment of high standards through coordination of the services of general practitioners, specialists, laboratories, and other auxiliary services, and through the coordination of the services of practitioners with those of educational and research institutions, hospitals and health centers, and through other useful means; (4) standards to apply to participating hospitals and the establishment and maintenance of the list of participating hospitals; (5) adequate and suitable methods and arrangements of paying for medical and hospital services; (6) studies and surveys of the services furnished by practitioners and hospitals and of the quality and adequacy of such services; (7) grants-in-aid for professional education and research projects; (8) establishment of special advisory, technical, local, or regional boards, committees, or commissions.

"Guiding Principles and Provisions for Administration

"SEC. 905. In the administration of this title, with respect to provision of benefits furnished by physicians and with respect to payment for their services, after consultation with the Council, the Surgeon General shall be guided by the following principles and provisions as far as these are applicable:

"(1) Any physician legally qualified by a State to furnish any services included as benefits under this title shall be qualified to furnish such services as benefits under this title (except as otherwise provided in paragraph (4) of this section) in accordance with such rules and regulations as may be prescribed.

"(2) Every individual entitled to receive as a benefit services from a physician shall be permitted to select, from among those designated in paragraph (1) of this section, those from whom he shall receive such services, except specialist services, subject to the consent of the practitioner selected, and to change such selection in accordance with such rules and regulations as may be prescribed.

"(3) The Surgeon General shall publish and otherwise make known in each area to individuals entitled to benefit under this title the names of general practitioners who have agreed to furnish services as benefits under this title and to make such lists of names readily available to individuals entitled to make the selection of a general practitioner as provided under paragraph (2) of this section.

"(4) Services which shall be deemed to be specialist services shall be those so designated by the Surgeon General, and the practitioners from among those included in paragraph (1) above who shall be qualified as specialists and entitled to the compensation provided for specialists shall be those so designated by him as qualified to furnish such specialist services and only with respect to the particular class or classes of specialist services he shall determine for each such specialist, in accordance with general standards previously prescribed by him after consultation with the Council and utilizing standards and certifications developed by competent professional agencies.

"(5) The services of specialists shall ordinarily be available only upon the advice of the general practitioner.

"(6) The methods of administration, including the methods of making payments to practitioners, shall (A) ensure the prompt and efficient care of individuals entitled to benefits; (B) promote personal relationships between physician and patient; (C) provide professional and financial incentives for the professional advancement of practitioners and encourage high standards in the quality of services furnished as benefits under this title through the adequacy of payments to practitioners, assistance in their use of opportunities for post-graduate study, coordination among the services furnished by general practitioners, specialists, laboratory, and other auxiliary services, coordination among the services furnished by practitioners, hospitals, health centers, educational, research, and other institutions, and between preventive and curative services, and otherwise; (D) aid in the prevention of disease, disability, and premature death; and (E) ensure the provision of adequate service with the greatest economy consistent with high standards of quality.

"(7) Payments from the Trust Fund to general medical practitioners, for services under this title, shall be made (A) on the basis of fees for services rendered to individuals entitled to benefits, according to a fee schedule approved by the Surgeon General; or (B) on a per capita basis, the amount being according to the number of individuals entitled to benefit who are on the practitioner's list; or (C) on a salary basis, whole time or part time; or (D) on a combination or modification of these bases, as the Surgeon General may approve, according in each area as the majority of the general medical practitioners to be paid for such services shall elect, subject to such necessary rules and regulations as may be prescribed.

"(8) The methods of making payments from the Trust Fund to designated specialists for services under this title, furnished as special medical benefits, may include payments on salary (whole time or part time), per session, fee-for-service, per capita, or other basis, or combinations thereof.

"(9) Payments for particular services or classes of services furnished as benefits under this title may be nationally uniform or may be adapted to take account of relevant factors.

"(10) The Surgeon General may prescribe maximum limits to the number of potential beneficiaries for whom a practitioner may undertake to furnish general medical benefit and such limits may be nationally uniform or may be adapted to take account of relevant factors, as the Surgeon General may determine.

"(11) In any area where payment for the services of a general practitioner is on a per capita basis, the Surgeon General shall distribute (subject to limits prescribed in accordance with paragraph (10) of this section) on a pro rata basis among the practitioners of the area on the list established pursuant to paragraph (3) of this section those individuals in the area who, after due notice, have failed to select a general practitioner or who having made a selection have been refused by the practitioner.

"(12) In each area the provision of general medical benefit for all individuals entitled to receive such benefit shall be a collective responsibility of all qualified general practitioners in the area who have undertaken to furnish such benefit.

"Hearings and Appeals

"SEC. 906. The Surgeon General is hereby authorized to establish necessary and sufficient hearing and appeal bodies to hear and determine complaints from individuals entitled to benefits under this title, from

practitioners who have entered into agreement for the provision of services as benefits under this title, and from participating hospitals, and to take such steps as may be appropriate and are not contrary to any other provision of this Act to remedy the grounds for complaint, if any; and to establish necessary and sufficient hearing and appeal bodies to hear and determine disputes among practitioners and/or participating hospitals, and to take such steps as may be appropriate and are not contrary to any other provision of this Act to settle such dispute: PROVIDED, That with respect to any complaint or dispute involving matters or questions of professional practice or conduct the hearing body shall contain competent and disinterested professional representation: PROVIDED FURTHER, That with respect to any complaint or dispute involving only matters or questions of professional practice or conduct the hearing body shall consist exclusively of such professional persons.

"Participating Hospitals

"SEC. 907. (a) The Surgeon General shall publish a list of institutions found by him to be participating hospitals, and shall from time to time revise such list to include thereon all institutions which he thereafter finds to be participating hospitals and to withdraw therefrom all institutions which he finds cease to meet the requirements of a participating hospital. Inclusion of an institution upon such list shall, unless and until withdrawn by him, be conclusive as to the Surgeon General that such institution is a participating hospital for the purpose of this section.

"(b) The Surgeon General is directed to make findings of fact and decisions as to the status of any institution as a participating hospital in accordance with general standards previously prescribed by him after consultation with the Council. Any institution which is not included by him in the list of participating hospitals, or having been included thereon has been withdrawn therefrom, may file with the Surgeon General a petition to be included in such list, which petition shall set forth such information as the Surgeon General may deem necessary to establish that such institution meets the requirements of a participating hospital. Whenever requested by any institution the petition of which has been denied, the Surgeon General shall give such institution reasonable notice and an opportunity for a fair hearing with respect to the decision denying such petition, and, if a hearing is held, shall, on the basis of evidence adduced at the hearing, affirm, modify, or reverse his findings of fact and such decision.

"Application for Hospitalization Benefits

"SEC. 908. No application by an individual for hospitalization benefits shall be valid under this title with respect to any day of hospitalization if such application is filed more than ninety days after such day, or with with respect to any day of hospitalization for mental or nervous disease or for tuberculosis after such diagnosis has been made.

"Relation With Workmen's Compensation Benefits

"SEC. 909. No individual shall be entitled to any benefit under this title with respect to an injury, disease, or disability on account of which any medical or hospitalization service is being received, or upon application therefor would be received, under a workmen's compensation plan of the United States or of any State.

"Provision of Benefits for Non-Insured Persons

"SEC. 910. (a) Notwithstanding any other provision of this title, any or all benefits provided under this title to individuals entitled to such benefits may be furnished to other individuals for any period for which equitable payments to the Trust Fund on behalf of such other individuals have been made or for which reasonable assurance of such payments has been given by public agencies of the United States, the several States, or any of them or of their political subdivisions, such payments to be in accordance with agreements and working arrangements negotiated by the Surgeon General with such public agencies and in accordance with contracts into which he may enter after approval by the Social Security Board. Benefits furnished to such other individuals shall, as far as may be practical in each area, be of the same quality, be furnished by the same methods, and be paid for through the same arrangements, as obtains for benefits furnished to individuals entitled to benefits under this title.

"(b) The provisions of subsection (a) of this section shall extend to groups of persons for whom the Congress of the United States has made or may make provision and to moneys appropriated therefor, and to moneys provided for grants to States or for administrative expenses under this Act and other Acts of Congress.

"Limitations on General Medical and Laboratory Benefit

"SEC. 911. (a) The Surgeon General and the Social Security Board may, under joint rules and regulations, determine for any calendar year or part thereof that every individual entitled to general medical benefit may be required by the physician furnishing such benefit to pay a fee with respect to the first service or with respect to each service in a spell of sickness or course of treatment. Such determination shall be made only after good and sufficient evidence indicates that such a determination is necessary and desirable to prevent or reduce abuses of entitlement to such benefit, and shall fix the maximum size of such fee at an amount estimated to be sufficient to prevent or reduce abuses and not such as to interpose a substantial financial restraint against proper and needed receipt of medical benefit. Such determination may also limit the application of such fees to home calls, to office visits, or to both, and may fix the maximum total amount of such fee payments in a spell of sickness or course of treatment, and may also provide for differences in the maximum size of such fees or total amount of such

fee payments for urban and rural areas and with regard for differences among States or communities.

"(b) The Surgeon General and the Social Security Board, having regard for current and prospective amounts in the separate account established in accordance with section 913, may, under joint rules and regulations, limit for any calendar year or part thereof the cost of laboratory benefit which shall be borne by payments from such Fund, and such limitation may be with respect to a class of services, supplies, or commodities, with respect to maximum payments per beneficiary in a benefit year, with respect to a specified fraction of the cost, or combinations thereof.

"Report Concerning Dental, Nursing, and Other Benefits

"SEC. 912. The Surgeon General and the Social Security Board jointly shall have the duty of studying and making recommendations as to the most effective methods of providing dental, nursing, and other needed benefits not already provided under this title, and as to expected costs for such needed benefits and the desirable division of the costs between (1) the financial resources of the social-insurance system and (2) payments to be required of beneficiaries receiving such benefits, and shall make reports with recommendations as to legislation on such benefits not later than two years after the effective date of this title.

'Medical Care and Hospitalization Account'.

"SEC. 913. (a) There is hereby established within the Trust Fund a separate account to be known as the 'Medical Care and Hospitalization Account'.

"(b) The Managing Trustee shall credit to this account amounts equivalent to—

"(1) One-fourth of the contributions paid in accordance with sections 960 and 961, respectively, of this Act, and

"(2) Three-sevenths of the contributions paid in accordance with sections 963, 964, and 965, respectively, of this Act, (including applicable shares of interest, penalties, and additions to the contributions) and a proportionate part of the earnings of the Trust Fund, determined in accordance with the average daily balance to the credit of this account.

"(c) The Managing Trustee shall also credit to this account reimbursements to the Trust Fund made in accordance with the provisions of sections 903 and 910.

"(d) The Managing Trustee shall debit against this account the amounts disbursed from the Trust Fund for the purpose of paying or providing benefits under this title and amounts estimated (in accordance with the provisions of subsection (h) of section 969) by him, the Chairman of the Social Security Board and the Surgeon General to be expended for the administration of the provisions of this title.

"(e) The amount which stands to the credit of this account shall be available for the payment or provision of benefits and for administrative expenses under this title, and for no other purposes; and the sum of disbursements for the payment or provision of benefits under this title and for the payment of reimbursements to the Treasury for administrative expenses incurred therewith shall not exceed the amounts which stand to the credit of this account, as specified in this section.

"Rules and Regulations

"SEC. 914. The Surgeon General, after consultation with the Social Security Board, and with the approval of the Federal Security Administrator, shall make and publish such rules and regulations, not inconsistent with other provisions of this Act, as may be necessary to the efficient administration of this title.

"Definitions

"SEC. 915. (a) The term 'general medical benefit' means services furnished by a legally qualified physician, including all necessary services such as can be furnished by a physician engaged in the general practice of medicine, at the office, home, hospital, or elsewhere, including preventive, diagnostic and therapeutic treatment and care, and periodic physical examination.

"(b) The term 'special medical benefit' means necessary services requiring special skill or experience, furnished at the office, home, hospital, or elsewhere by a legally qualified physician who is a specialist with respect to the class of service furnished.

"(c) The term 'laboratory benefit' means such necessary laboratory or related services, supplies, or commodities, not provided to a hospitalized patient and not included in subsections (a) and (b) of this section, as the Surgeon General may determine, including chemical, bacteriological, pathological, diagnostic and therapeutic X-ray, and related laboratory services, physiotherapy, special appliances prescribed by a physician, and eye glasses prescribed by a physician or other legally qualified practitioner.

"(d) The term 'period of hospitalization' means a period of one or more consecutive days of hospitalization.

"(e) The term 'day of hospitalization' means any day for the whole of which an individual has been confined in a participating hospital on the advice of a legally qualified physician for the purpose of receiving necessary hospital service: PROVIDED, That, with respect to a day in which an individual is admitted to or discharged from a hospital, such term may, in accordance with regulations to be prescribed by the Surgeon General, include a period of time of less than a whole day.

"(f) The term 'participating hospital' means an institution providing all necessary and customary hospital services, and found by the Surgeon General to afford professional service, personnel, and equipment adequate to promote the health and safety of individuals customarily hospitalized in such institution and to have procedures for the making of such reports

and certifications as the Surgeon General and the Social Security Board may from time to time require, to assure that hospitalization benefit will be provided only to or on behalf of individuals entitled thereto: PROVIDED, That with respect to inclusion in the list of participating hospitals the Surgeon General may accredit a hospital for limited varieties of cases and may accredit an institution for the care of the chronic sick; and that in determining the adequacy of the professional service, personnel, and equipment of any such institution, the Surgeon General may take into account the purpose of such limited accrediting, the type and size of community which the institution serves, the availability of other hospital facilities, and such other matters as he may deem relevant.

"(g) The term 'hospitalization benefit' means an amount, as determined by the Surgeon General after consultation with the Council and after approval by the Social Security Board: Not less than $3 and not more than $6 for each day of hospitalization, not in excess of thirty days, which an individual has had in a period of hospitalization; and not less than $1.50 and not more than $4 for each day of hospitalization in excess of thirty in a period of hospitalization; and not less than $1.50 and not more than $3 for each day of care in an institution for the care of the chronic sick. In lieu of such compensation, the Surgeon General may, after approval by the Social Security Board, enter into contracts with participating hospitals for the payment of the reasonable cost of hospital service, at rates for each day of hospitalization neither less than the minimum nor more than the maximum applicable rates specified in this subsection, such payment to be full reimbursement for the cost of essential hospital services, including the use of ward or other least expensive facilities compatible with the proper care of the patient.

"(h) For the purpose of this title, an individual shall be deemed 'currently insured' if he had during his eligbility period been paid wages of (a) not less than $150, and (b) not less than $50 for each of not less than two calendar quarters."

It is proposed that every employer shall pay a social insurance contribution equal to 6% of the wages paid to his employees up to $3,000 a year in each individual case, and that every individual employee shall pay a social insurance contribution equal to 6% of the wages received by him up to $3,000 a year in each individual case, making a total of 12% social security tax from the employer and employee combined. It is further proposed that every self-employed individual shall pay a social insurance contribution equal to 7% of the market value of his services rendered, but not including that part of any remuneration in excess of $3,000 for any calendar year.

It is further proposed that one quarter of the 12% tax paid by the employer and the employee combined and three-sevenths of the amounts paid in by the self-employed and certain other groups shall be allocated for the maintenance of hospitalization and medical benefits. It has been estimated that 1% would be sufficient to pay for the hospitalization expense and 2% to provide for medical benefits.

June, 1943

PENICILLIN BIBLIOGRAPHY

Announced in the June issue of Medical Journal Abstracts, the very complete 93-page annotated bibliography, Penicillin and Other Antibiotics Produced by Microorganisms, published by E. R. Squibb & Sons, has had widespread distribution, both to physicians in civilian practice as well as to those with our armed forces. It is distributed, as an editorial addendum states, "with the hope that in the interim all in medical practice who are interested in Penicillin may have an opportunity to post themselves on the preliminary investigation which preceded its general accessibility."

The bibliography is divided into three parts. The first portion, containing abstracts of 105 papers, deals with Penicillin, and since the arrangement is chronological the historically-minded reader can follow investigational progress from Fleming's announcement of his discovery in 1929 up to the clinical report of Mayo Clinic's Doctors Herrell, Cook and Thompson in the May 29, 1943 issue of the J.A.M.A.

The second part of the bibliography contains 124 papers dealing with Tyrothricin and Other Antibiotics from Bacteria. The third section includes 20 references to Antibiotics from Various Organisms and to reviews of all these subjects. The utility of the bibliography is measurably enhanced by a very detailed author and subject index. The publishers announce copies are available gratis to physicians; address Professional Service Department, E. R. Squibb & Sons, 745 Fifth Avenue, New York, 22, N. Y.

"What's your name, Honey?"
"Waste."
"What a coincidence . . . mine is Haste."

Medicine's Role in the War Effort

THE COMMISSIONING OF INTERNS AND RESIDENTS

The Officer Procurement Service, Washington, D. C., issued a memorandum (FT-108) on August 7 to commanding generals of service commands, explaining the action to be taken in procuring physician interns and residents for appointment in the Medical Corps of the Army and requiring immediate action by each district office. The physicians to whom this memorandum applies are (1) interns graduated from medical schools during March-June 1943 who have not yet been commissioned in the Army and Navy and (2) residents who graduated in June 1942 or before who have not yet been commissioned in the Army and Navy. All such interns and residents are eligible for commissioning except those previously physically disqualified by the Surgeon General or otherwise ineligible for commissions under army regulations. Interns and residents qualified by Selective Service as IV-F because of physical disability and female interns and residents are potential candidates.

The source of such candidates for medical commissions are the public and private hospitals with 50 or more beds. Immediate contact with the superintendent of all such hospitals must be made requesting the names of all potential intern and resident candidates and permission to get in touch with them at times convenient to all.

District offices will use every effort to sell potential candidates on their patriotic duty to take steps to qualify for commissions. Deferment from induction will not be available to potential candidates on completion of their current internships and residencies. No such candidate who is commissioned will be called to active duty until the completion of his internship or residency. The Army has no intention to deprive hospitals of the services of necessary physicians, interns and residents until completion of their internships and residencies; it has every intention, the memorandum states, to commission in the Medical Corps all such interns and residents at the earliest possible moment, postponing their call to active duty until the completion of their respective terms of their internships and residencies. A list of the names of all potential candidates in these groups who refuse or wilfully neglect to be processed for commission will be maintained.

All potential candidates covered by this memorandum are deemed to be "cleared" by the Procurement and Assignment Service and to have been "determined as available," in accordance with a letter from the Procurement and Assignment Service dated August 7 addressed to all superintendents of hospitals having interns and residents and to corps area and state chairmen. On the same day on which the interns and residents fill out their applications, the hospitals which these physicians are serving should apply to the state chairman of the Procurement and Assignment Service for their deferment until the terms of their internships and residencies have expired. All interns are deferred for the term of one year internship, but if a resident is deemed by the Procurement and Assignment Service as not essential to the hospital he should accept a commission and expect to go on active duty immediately.

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BUY AN EXTRA BOND!

APPOINTMENT OF OFFICERS FROM CIVIL LIFE

The Acting Secretary of War, Robert P. Patterson, on July 13 issued a memorandum to the Secretary of War's Personnel Board, Officer Procurement Service, commanding generals of the Army Ground Forces, the Army Service Forces and the Army Air Forces, and Division of War Department General Staff, pointing out that, during the period of very rapid expansion of the Army last year and of the critical shortage of commissioned officers, civilians were appointed in larger numbers to commissioned grades. Now the Army is rapidly approaching its maximum planned strength and officer shortages, except in certain very critical categories, namely officers of the medical department, service pilots and chaplains, have been largely overcome. The Acting Secretary of War, therefore, directed that hereafter the Secretary of War's Personnel Board closely scrutinize all recommendations for appointment of civilians other than the exceptions noted and withhold approval in all cases in which it is not clearly indicated that the individual concerned possesses outstanding special qualifications of a technical or professional nature urgently required by the army and not obtainable from any other source: also that more effective methods be adopted, under direction of the General Staff, to classify properly and assign personnel now in the service, to the end that requirements for commissioned officers with professional or technical qualifications other than those indicated be obtained through the reassignment of qualified officers or through the selection and appointment of qualified enlisted men, that the Assistant Chief of Staff take action to reduce to the minimum the number of special categories that may be appointed from civil life and that the commanding generals of the three major commands and their subordinates refrain from requesting the appointment of civilians as commissioned officers except in cases in which the need is so urgent and the qualifications of the individual so unusual that no other solution is possible.

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THE NAVY WANTS SIX HUNDRED WOMEN DOCTORS

Reserve commissions in the Medical Corps of the Navy are now open to qualified women physicians in the ranks of lieutenant commander, lieutenant and lieutenant (junior grade). The Bureau of Medicine and Surgery has announced an initial request for six hundred women doctors, two hundred of them to be commissioned in each of the available ranks.

Under terms of Public Law 38, passed by Congress last spring, women doctors are being accepted in the Medical Corps with the same status as men doctors. They will be assigned to duty at various types of shore medical establishments within the continental limits of the United States.

In applying for commissions in the Medical Corps, women doctors must meet the same professional requirements as men and must be approved for military duty by the Procurement and Assignment Service for Physicians in order to prevent undue depletion of medical services in civilian communities. The policy has also been established that women doctors will not be accepted if they are married to Navy men or if they have children under 18 years of age.

The general requirements for women physicians are these: For general medical officers the age limits are 21 to 35; for specialist medical officers the age limits are 27 to 50. Applicants must be graduates of an accredited medical school and have had at least one year's internship in an approved hospital. They must be duly licensed to practice medicine and be a member of a state or local medical society.

An exception to these requirements is made for women who apply for commissions as general medical officers immediately on completion of medical school. In this case the internship, license and membership stipulations may be waived.

In addition, applicants for specialist commissions must have had at least three years' recent practical experience in a particular specialty.

The eight women doctors at present holding commissions as lieutenants (junior grade) with the W-V(S) classification of the Women's Reserve, U. S. Naval Reserve, are eligible for transfer to the Medical Corps with an MC-V(S) or MC-V(G) classification.

Applications should be submitted to the nearest office of Naval Officer Procurement.

HOSPITALIZATION IN THE FINAL BATTLE IN TUNISIA

Lieut. Gen. Omar Bradley, commander of the U. S. Army Second Corps in the final battle in Tunisia, in his report to Gen. George C. Marshall, chief of staff, covering operations between April 23 and May 9, made the following comments concerning hospitalization:

"The medical plan was drawn up so as to provide quick evacuation. Initial locations placed the evacuation hospitals within sound of artillery fire and almost within sight of some of the enemy's bombing operations. Locating these units well forward, however, in no way affected the efficiency of the doctors and nurses, who displayed an admirable coolness and accomplished results which, under normal hospital conditions, would have been considered excellent. Their forward locations reduced the time interval necessary for a wounded man to receive adequate care.

"The ambulance hauls to the base hospital at Bone varied from 85 to 110 miles over rough and tortuous roads. This distance was too great for evacuation of seriously wounded patients, particularly chest and abdominal cases. As a result the evacuation hospital which had initially been set up to take care of patients who would remain in the area until they could return to duty was given the mission of attending to the more seriously wounded.

"When the enemy surrendered in northern Tunisia he was operating a total of five hospitals, a total of 600 beds. By May 12 there were 745 enemy patients in our hospitals.

"Blood donors in the hospitals became a problem, and additional personnel from depot companies and clearing companies of medical battalions were utilized for this purpose. One hospital unit formed its own blood bank by cross matching these individuals, withdrawing the blood and placing it in refrigerators where it was easily accessible. It was found that this blood could be kept for several days and then given cold."

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SITES FOR MORE ARMY HOSPITALS

Brig. Gen. Joseph B. Sweet, commanding general of the Communications Zone, is reported to have announced that a site has been selected near Beaumont, Calif., for an army hospital of about 750 beds, which it is expected will be completed in October. According to the Banning, Calif., *Record* of July 22, another army hospital of 1,000 beds is to be constructed at the city limits of Banning. An evacuation hospital has already been established on this site to take care of soldiers from the desert area.

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THE WAVES DO EXCELLENT WORK

The Bureau of Medicine and Surgery has received many favorable comments concerning the excellent work being done by the Hospital Corps Waves on duty at naval hospitals throughout the country. Among the 600 selected monthly, more than 10 per cent are qualified technicians in the allied fields of medical work, about 10 per cent are college graduates, and about 25 per cent have one year or more years of college. The Waves being accepted for the Hospital Corps of the Navy are a true cross section of young womanhood in America and represent rural communities, large cities, factories, farms and schools. Their work is vitally important in that it releases male hospital corpsmen for sea or foreign service.

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INCREASED PRODUCTION OF PENICILLIN

Additional facilities for the manufacture of penicillin have been acquired in Rensselaer, N. Y., by the Winthrop Chemical Company, Inc., according to Dr. Theodore G. Klumpp, president of the company. This drug is now allocated exclusively to the armed forces, millions of units being supplied weekly. The "unit" system of measurement derives from Oxford University. Pure penicillin has not yet been isolated. The "Oxford unit" is based on comparison with standard material furnished by Oxford University to laboratories throughout the world. One million units weigh about 1/5 ounce. Sulfonamide resistant cases of gonorrhea can be cured promptly by as little as 100,000 units of penicillin. Larger doses are usually needed for osteomyelitis and other infections.

Penicillin was discovered by Dr. Alexander Fleming, English scientist, in 1929. It was not then available for treatment of disease because of the extremely small quanities that could be produced and the instability of the substance. The present interest in penicillin dates from 1939, when important information regarding the chemistry of the extract was obtained and it

was found that the calcium and sodium salts are more stable than the parent substance. The exact structure of penicillin is unknown at present, and until it has been determined artificial production by synthesis is impossible. However, much has been learned about the "empirical" or general chemical formula.

Penicillin is now under strict allocation of the War Production Board for national defense and there is no prospect that a surplus will soon be available for civilian use.

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RESTRICTION ON MANUFACTURE OF MEDICAL FURNITURE

The War Production Board issued on July 13 Schedule 3 to General Limitation Order L-214, placing restrictions on the manufacture of items and models of medical and surgical furniture and related equipment. This order provides, among other things, that no manufacturer shall make or continue to make any items of such equipment and furniture other than those on list A attached to the schedule, and the listed items shall be made only in the number of models specified on the list which conform with the descriptions set forth. However, a manufacturer may make any number of models of medical and surgical furniture and related equipment not listed on list A and any number of models and items on list A in excess of the number specified provided they do not contain any metal other than iron and carbon steel and that the weight of such metal comprises not more than 25 per cent of the total weight of the model. No manufacturer shall incorporate in any medical and surgical furniture and related equipment any stainless steel or other alloy steel, monel metal, copper, copper base alloy, nickel, aluminum or zinc, except as specified in list A. This restriction does not apply to the use of copper and copper base alloy in the electrical circuit or electrical connections of any items listed in list A.

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CLASS IN DEEP DIVING

The Bureau of Medicine and Surgery announces that a class in deep diving for medical officers will be assembled at the Diving School, Navy Yard, Washington, D. C., on September 13, and that twelve medical officers have been assigned to this instruction.

AVIATION MEDICAL EXAMINERS

Graduation exercises were held at the School of Aviation Medicine, Randolph Field, Texas, on June 3, following completion of the course for Aviation Medical Examiners. The didactic portion of the course is conducted at Randolph Field, Texas, and the practical portion of the course at the three army air forces classification centers. The list of students, graduating on June 3 from Illinois: Vaughn A. Avakian, 1st Lieut., Chicago; Thomas H. Culhane Jr., Captain, Rockford; Robert F. Dearborn, 1st Lieut., Byron; Robert G. Fox, 1st Lieut., Park Ridge; Harold J. Freiheit, 1st Lieut., Highland; Norman E. Goulder, 1st Lieut., Chicago; Robert D. Hart, 1st Lieut., Peoria; Glenn L. Judson, 1st Lieut., Evanston; Irwin A. Kallen, Captain, Chicago; Robert T. LeSage, 1st Lieut., Dixon; Emil D. Levitin, Captain, Chicago; Walter Lewinnek, 1st Lieut., Mason City; William A. Loeppert, 1st Lieut., Chicago; Keith J. Long, 1st Lieut., Fairview; George B. McNeely, 1st Lieut., Stanford; Albert G. Martin, 1st Lieut., Aurora; Howard W. Meredith, Captain, Chicago; John W. Monroe, 1st Lieut., Benton; Herman R. Moser, 1st Lieut., Aurora; Alfred H. Movius Jr., 1st Lieut., Oak Park; Carl F. Neuhoff, 1st Lieut., Peoria; Henry C. Oleschowski, 1st Lieut., Chicago; Herbert Rodewald, 1st Lieut., Murphysboro; Julian J. Sitney, 1st Lieut., Chicago; Ralph D. Sullivan, 1st Lieut., Chicago; William O. Townsend, 1st Lieut., Chicago; Elliott M. Tratt, 1st Lieut., Morris; Arthur R. Weihe, 1st Lieut., Oak Park.

★ ★

SPECIAL LAPEL AND SLEEVE INSIGNIA FOR MEDICAL AND DENTAL STUDENTS

Special lapel and sleeve insignia have been authorized, according to the Bureau of Medicine and Surgery, for students in the Navy V-12 Program attending medical and dental colleges. Such students will wear the regular midshipmens' uniform. On the lapels of the blue uniform coat medical students will wear a device composed of the oak leaf and acorn insigne of the medical corps superimposed on a fouled anchor at a 45 degree angle. Similarly, dental students will wear the dental corps insigne superimposed on a fouled anchor. In addition, the number of years of completed medical or dental study will be indicated by gold sleeve stripes. These stripes, one for each year com-

pleted, will be 1½ inches long and ⅛ inch wide. They will be sewed 2 inches above the cuff and at a 45 degree angle to the cuff line. First year medical or dental students will wear clean sleeves. When in khaki uniforms, medical and dental students will wear pin-on insignia, similar to the lapel insignia, on each side of the shirt collar.

★ ★

THE SUPPLY OF PHYSICIANS

More than 4,000 seniors who entered the accelerated medical education program over a year ago are now well into their intern year and will complete that training before March 31, 1944. They will thus become available for military and civilian practice three months earlier than in normal times. Even half of these, should only that small proportion be commissioned, can care medically for over 300,000 troops. If this number of men is thereby enabled to enter active service three months early, before April of next year, the accelerated program will have justified itself in supplying the men required. All medical schools are accelerating throughout the four year program except one which limits the program to the junior and senior years. All are admitting classes every nine months except one which admits a class every year and one which admits a class each quarter.

A study of the number of graduates in the past forty years reveals trends of interest and importance. During approximately the first half of this period the number of graduates declined from over 5,000 annually to about half that number. This reduction paralleled the closing of many medical schools, one half of which disappeared during the period of enforcement of high standards in medical education. During the last two decades the number of graduates gradually rose; even before the war it again exceeded 5,000. This occurred in spite of an essentially unchanged number of medical schools. In 1942 there were about as many graduates from seventy-seven high grade schools as there were in 1905 from a hundred and sixty schools, most of which were decidedly inferior. This upward trend is probably warranted in the cases of many schools which have increased their faculties and facilities. In other instances increased enrolments and graduates are probably not justified by proportional increases in staff and facilities.

Now the annual number of graduates far exceeds that of any period in the history of this country, approximating twice the number of physicians who die in normal years. This present large number of graduates is to be contrasted sharply with the figure for 1922, when only 2,500 received the M.D. degree. This figure — an all time low in medical graduates — was also related to war. It followed the low registration of freshmen in 1918, when less consideration was given to the necessity for continued training of physicians in wartime. Fortunately the last war ended relatively quickly, so that this lack of adequate medical preparation was not as much in evidence as it would surely be in the present conflict.

Editorial—J.A.M.A., Aug. 14, '43.

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APPOINTMENT OF MARRIED NURSES IN ARMY NURSE CORPS

For the duration of the war and for six months thereafter, married nurses who meet all other requirements for military service may now be accepted for appointments in the Army Nurse Corps as Reserve nurses. Only those nurses who are willing to accept assignment unreservedly will be appointed. A nurse with one or more dependent children under 14 years of age may not qualify for appointment.

★ ★

NURSES' AIDES ELIGIBLE FOR CIVILIAN SECURITY BENEFITS

All volunteer nurses' aides should be enrolled in the U. S. Citizens Defense Corps, the medical division of the Office of Civilian Defense states in a special announcement, Circular Medical Series No. 32. The immediate importance of this announcement lies in the fact that nurses' aides must be enrolled in the Nurses' Aide Unit of the Citizens Defense Corps if they are to be eligible for the benefits provided under the War Civilian Security Program of the Federal Security Agency for all members of or trainees for the Citizens Defense Corps who may be injured in line of duty. Nurses' aides at present working in hospitals and health agencies are considered to be in training for service in care of the wounded in the event of an enemy attack or other wartime disaster. They are therefore eligible for membership in the Defense Corps and are thus eligible for the benefits of War Civilian

Security after enrollment. It is suggested that the local chief of Emergency Medical Service and the local nurse deputy arrange with the Red Cross Nurses' Aide Committee to have the required CDC oath administered at the graduation ceremony. All nurses' aides who have completed their training since the program was initiated but have failed to enroll in the Defense Corps should now become enrolled members. Women who are still undergoing preliminary training as nurses' aides but have not yet graduated are also eligible for benefits if they are properly registered with the personnel officers of the appropriate Citizens Defense Corps as trainees for the nurses' aide unit.

NEW METHOD OF MAKING SEA WATER DRINKABLE

The Navy Department announced on June 8 that a simple method of making sea water safe to drink has been perfected at the Naval Medical Research Institute, Bethesda, Md. The method, which appears to be more practical than any other yet devised, except distillation, is intended primarily for use on rubber life rafts carried on air craft. The equipment consists of two chemical compounds and four plastic bags each having a capacity of slightly more than a quart. The survivor dissolves one of the chemical compounds in sea water contained in one of the bags, then pours the mixture into another bag that contains a filter sac. The product is emptied into the third bag and the first step is repeated except that the second chemical is used. After the chemical has acted, the water is filtered in the fourth bag. Two of the four steps are eliminated if only two of the bags are used. In this case one container serves for dispersion and filtration of each chemical compound. By the new method of desalination, a survivor who started out with ten of the chemical packets in the necessary bags would be assured of a twenty day supply of drinking water. If there were five persons in the life boat, the supply would be enough for four days.

The composition and design of the bags are the result of several months of experimentation at the Naval Medical Research Institute. The process of removing sodium salts from sea water was discovered by Lieut. (j.g.) Claire R. Spealman, hospital volunteer specialist, and further developed by Lieut. William V. Consolazio, hospital volunteer specialist, chief chemist of the Naval Medical Research Institute, and other members of the staff. Research was carried out under the direction of Capt. William L. Mann, M. C., medical officer in command of the Naval Medical Research Institute, and Dr. A. C. Ivy, scientific director of the institute, and the new method was announced by Rear Admiral Ross T. McIntire, Surgeon General of the Navy.

TROUBLE PRETTY WELL DIVIDED

"And tho' to us it seems one sided,
Trouble is pretty well divided,
If we could look in every heart,
We'd find that each one has its part,
And those who travel Fortune's road,
Sometimes carry the biggest load."

—Anonymous.

In spite of the steady improvement in diagnostic techniques and facilities during the past twenty years, little substantial progress has been made in finding cases of early tuberculosis. The reasons for this failure are too well known to call for discussion here. Briefly they can be reduced to two facts: early tuberculosis rarely gives rise to symptoms, and apparently well people seldom consult a doctor. Henry D. Chadwick, M.D. and Alton S. Pope, M.D. The Modern Attack on T.B.

In some of the European countries pneumonia is a chief cause of death. If it can be treated early with one of the sulfa drugs the mortality can be reduced probably by 50% to 75%.

The second major cause of death is tuberculosis and all age groups of the population will be affected. Under the conditions of war and military occupation, the prevalence of the disease is undoubtedly increasing, and it will be one of the principal problems of the reconstruction period, as it was after the last war. This time we should be better equipped to fight tuberculosis, because we have learned that it is a community problem and can be better dealt with through a specialized program. In combating tuberculosis, the first problem will be to locate the cases. Persons with open lesions should be isolated and taught how to care for themselves so as to be of the least possible danger to those with whom they must come in contact. In locating cases, traveling diagnostic units, including X-ray equipment, will be essential. Locating the case is only the initial step; the big problem is to reduce contagion by removal, by home isolation, and by artificial pneumothorax. The public health nurse is an essential member of the public health personnel in the fight against tuberculosis. M. E. Tennant, R.N. Amer. Jour. Nursing, June, 1943.

Original Articles

Panel Discussion

THE THYROID IN CHILDHOOD

ANTON J. CARLSON, M.D.
Chairman
CHICAGO

Dr. Carlson: A great deal of water has gone over the dam on the subject of the thyroid in childhood in the present generation. When I was a graduate student forty years ago, the spasm following great impairment of the parathyroid was called tetania parathyreopriva. At that time we did not know the relation of iodine in food and drink to simple goiter, although that was known several hundred years ago in China, and a hundred years ago in France and had been forgotten. It was rediscovered in the present generation. Also at that time we knew nothing of the probable important part played by the hormone from the pituitary gland on the thyroid, and we had scarcely touched the fundamental question of what governs the rate of hormone output from the thyroid. We have gone very far during this past generation in all these fields. I think that there are two fields that are still quite open, but maybe we will learn this afternoon that we have now clinical and laboratory tests accurate enough so that we can, in the office or in the hospital, diagnose incipient hypothyroidism. I doubt it. When it is advanced we can spot it. Secondly, I am sure we will agree at the end of the afternoon that we do not know all about the factors that control the rate of activity of the thyroid apart from iodine and the pituitary. So while we crow over our advance — and we have a right to do that — we have no reason to sit back and pat ourselves on the back and be satisfied, as we still have a long way to go.

The first paper by Dr. Margaret M. Kunde is entitled "Experimental Cretinism."

Presented before the Section on Pediatrics of the Illinois State Medical Society, Chicago, May 20, 1941.

EXPERIMENTAL CRETINISM*

M. M. KUNDE, M.D., PH.D.
Department of Medicine, Northwestern University, Chicago Maternity Center and Cook County Hospital
CHICAGO

An exhaustive review of the history of experimental cretinism is entirely too lengthy to fall within the time allotted to this symposium. Moreover, excellent summaries of the literature on this subject have been compiled by Swale Vincent[1]; Engelbach[2] and others. Suffice it here to note that the first extirpation of thyroids in young animals seems to have been performed by Raynard[3] (1834). Raynard removed the thyroids in old, middle-aged, and young dogs. He was unable to describe symptoms of cretinism because his young dogs died within a few days after the operation. Astley Cooper[4] (1834) it seems, therefore, published the first observations upon the effect of extirpation of thyroid in young pups. He describes the stupidity and malaise which followed. These symptoms were more accurately described by Schiff[5] (1856-1884). Following this, the literature is crowded with observations on results of thyroidectomy in young animals by such capable workers as Kocher[6], Horsley[7], Hofmeister[8], Carlson[9], Sharpey-Schafer[10], Simpson[11], Tatum[12], Kunde et al[13], and many others.

*Experimental studies referred to were carried out at the University of Chicago.

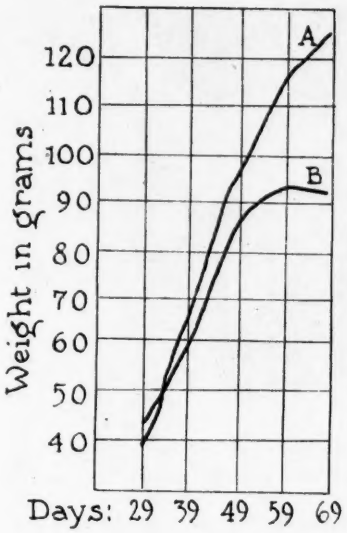


Figure 1. Showing the growth curve of 2 rats (litter mates), fed on the same diet. B was thyroidectomized at 29 days after birth (Kunde and Williams[12]).

One of the earliest and most spectacular of the effects described, following removal of the thyroid gland in the young, is the marked arrest of growth in stature. Hofmeister[8] was perhaps foremost in clearly demonstrating this phenomenon. Soon after his work, graphs, figures, and photographs published by the above mentioned investigators established and confirmed that dwarfing in growth invariably follows extirpation of the thyroid gland in young rats, rabbits, sheep, and dogs. Slide 1, Figure 1, (Kunde and Williams[13]), graphically illustrates the arrested growth in an experimentally produced cretin rat. A and B are litter-mates. Both received a nutritious and abundant diet made up of table scraps containing adequate vitamins and accessories. B was thyroidectomized 29 days after birth. At this time both animals weighed between 40 and 45 grams. It is noteworthy here to call attention to the fact that for approximately 20 days, very little interruption in growth occurred in the operated animal. After this, the growth curve approaches a plateau. Just why this latent period before growth becomes markedly arrested has never been demonstrated. Extirpation experiments indicate that both the

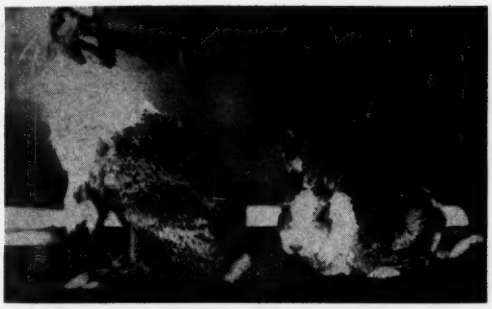
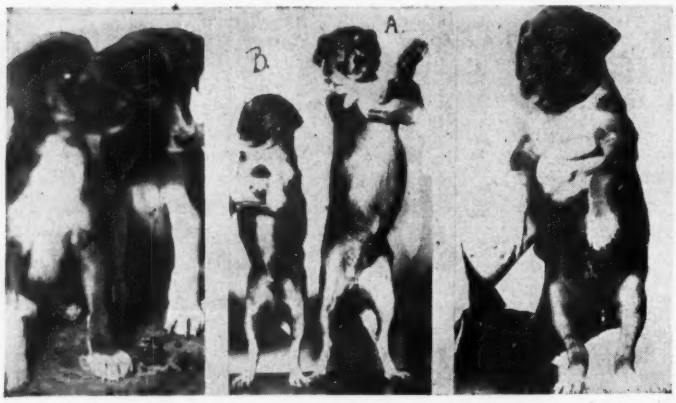


Figure 2. Photograph of experimentally induced cretin rabbit and normal litter mate. This photograph was taken 7 months after removal of thyroid of rabbit at right (Kunde[13] research in progress).

pituitary and thyroid are necessary for growth in the young. It may be that the causative factor in this appreciable growth after removal of the thyroid is a functional interrelationship between the growth promoting substance of the pituitary and the thyroid, which persists for the duration of this period, even though the gland which fabricates the thyroid hormone has been removed. Further investigation of this phenomena needs to be made. Figure 2, Slide 2, photographically illustrates experimentally induced cretinism in the rabbit (Kunde, Photographs from experiments in progress). Note the scaling skin; thin hair; pot-belliedness; kyphosis; rachitic-like deformities and lethargic appearance of the thyroidectomized rabbit of this group. Figure 3 (1, 2 and 3) beautifully illustrates experimental cretinism in dogs. (Kunde, Photographs from experiments in progress). Figure 3, (1 shows two litter-mate pups, 11 weeks of age in their normal condition. Following this, pup B was thyroidectomized. The parathyroid glands were spared so that no demonstrable symptoms of parathyroid tetany were in evidence. (2) shows the same animals seven months after surgical removal of the thyroid of pup B. Here the cretin-like effects are clearly in evidence. Figure (3) is a close-up of this same induced cretin pup; note the aged facies, protruding tongue, pot belly, and lethargic appearance. Figure (4) (Slide 6) is a photograph of spontaneous cretinism in man, published by Du Bois[14]. I merely wish to present this here for a comparison between the gross and out-



1 2 3

Figure 3. Shows progressing stages of induced cretinism in pup. (1). Photograph of 2 pups litter mates 11 weeks old, at which time the thyroid gland was removed from one. (2). Shows the same two dogs 7 months later. (3). This is a close up of the thyroidectomized pup at the same time that picture 2 was made (Kunde, research in progress).

Figure 4. Copy of the photograph of a cretin published by Du Bois[14].

standing characteristics of cretinism in lower animals and in the species *homo sapiens.*

Hofmeister early called attention to a disturbance in the skeletal development of cretins. He showed that the posture of cretins became typical. Bones were short and muscles of the limbs too weak to support the body weight. He also noted that the skin became increasingly dry and scaly and finally edematous and that his animals developed a typical pot-belly comparable to that seen in human cretins. Hofmeister called this condition chondrodystrophia thyreopriva. Kunde and Carlson[13], investigating this condition in the rabbit, showed that the most marked rachitic-like disturbance occurred in those animals where growth curves give evidence of incomplete, rather than total removal of the thyroids. Figure 5, (slide 7) is a photograph

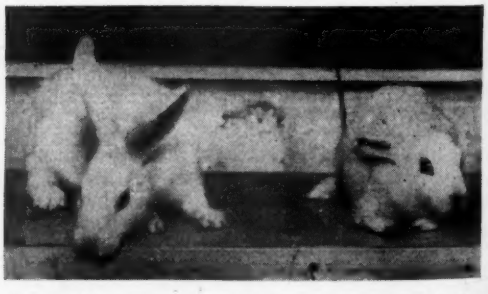


Figure 5. Showing bony deformaties of partially thyroidectomized rabbits (Kunde and Carlson[13]).

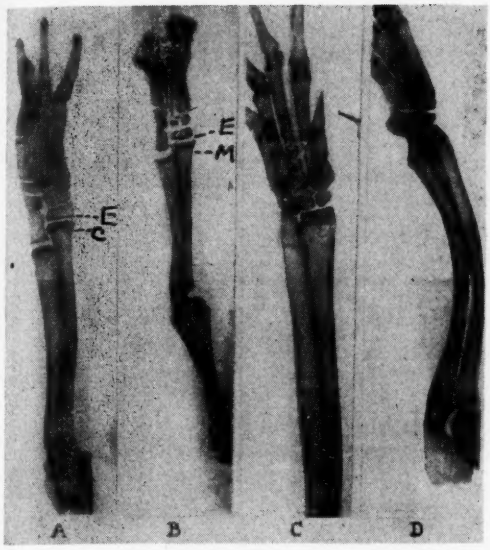


Figure 6. A and B are roentgenograms of littermates. A — normal animal; B — cretin 7 weeks old thyroidectomized 2 weeks after birth. Note the difference in the width of the epiphysis, E, of the normal and cretin animals, also the calcium deposits, c, at the beginning of the normal shaft, whereas in the cretin the metaphysis, M, shows very little calcium. C and D are roentgenograms taken 5 months later. Note the bending of the radius and ulna of the cretin, D, and the straight lines of the normal animal, C.

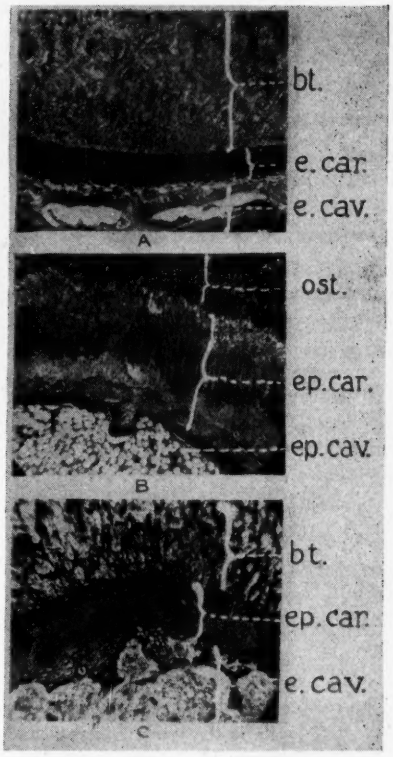


Figure 7. Histological studies through the epiphysis of experimental cretins (Kunde *et al*[13]).

of a partially thyroidectomized rabbit and its litter-mate. Growth of the cretin was approximately two-thirds that of the unoperated littermate. The epiphyseal regions of the distal ends of the long bones of the forelegs occasionally became so disturbed that that portion of the bone slipped entirely away from the rest of it so that a false joint is formed. Gross findings of these long bones indicate bowing of the forelegs, lateral displacement of the clavicles, bulging of the occipital and parietal bones, marked kyphosis, pot-belliedness accompanied by other cretinic changes such as scaling skin, shagginess of hairy coat, etc. Figure 6, (slide 8) shows roentgenograms of a foreleg of this type of cretin five weeks after thyroidectomy and again five months later. The distal ends of the radii and ulnae show widened epiphyses, translucent metaphyses, narrow zone of calcification of the epiphyseal ends of the bones and lessened density of the shaft.

Five months later, the bending of the long bones is more apparent and the epiphysis is still open. Histological sections through the epiphyseal region of such a bone (Fig. 7) presents the excessive multiplication and the large zone of proliferating cartilage cells characteristic of rickets. Kunde *et al*[13] showed that following thyroidectomy in young rats, adding antirachitic vitamin in the form of vitamin rich food stuffs to a nutritious diet does not prevent the occurrence of rickets.

Chemical analysis of the blood of these rachitic-like cretins gives evidence of a decreased acid soluble phosphorus, whereas the calcium content is normal or very slightly below that of the litter-mate, usually falling within the lower limits of normal variations of a series. Also a cholesterolemia (Kunde *et al*[13]) develops which may reach twice the normal blood cholesterol concentration. This becomes reduced to the normal value following thyroid medication.

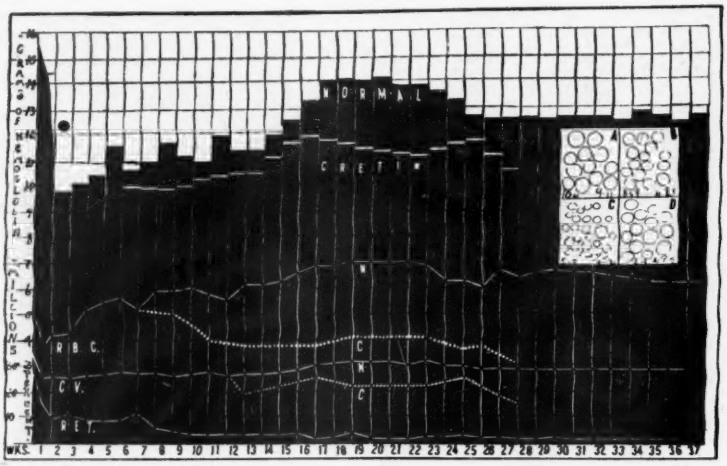


Figure 8. Graphic presentation of progressive changes occurring in the blood of normal and cretin rabbits from birth to 37 weeks of age. The horizontal columns indicate weekly intervals. The black background shows weekly changes in the hemoglobin of normal rabbits. The scale = grams Hb. per 100 cc. blood. The black dot indicates the time of thyroidectomy. The uppermost white line on the black background indicates the onset and course of deviation of the cretin hemoglobin from the normal. The scale for the red blood cells (4-5-6-6) = millions per cubic millimeter. N = normal, C = cretin. C.V. = per cent by volume of the cells in the whole blood; the scale 10-20-30 = hematocrit readings. R.E.T. = per cent reticulocytes of the red blood cells in the normal rabbits. The scale is the same as hematocrit readings. The insert (drawn to scale) indicates changes in the size of the r.b.c.; A = cells at birth, 9 to 11û. av. = 10û. B = size of cell at 7 months = 3-9û. av. 8.5û. C = cells after 4 weeks of induced hyper-thyroid, showing the small size of cells. Anemia is also present at this time, but the amount of hemoglobin contained in the cells is less than normal so that the color index is less than 1.

In these experimentally induced cretins, four to five weeks after thyroidectomy an anemia develops, characterized by a diminution in the number of red blood cells, and a decreased amount of hemoglobin. The decreased hemoglobin is correspondingly less than the diminution in the red blood cells, so that the color index is greater than 1, also the diameter of erythrocytes is greater than normal. Figure 8 (slide 9); The hydrochloric acid content of the gastric juice is normal. The volume ratio of corpuscles to plasma is less than that of the control, but somewhat greater than would be proportional to the cell count. The total blood volume seems not to be changed beyond variations in the normal animal.

The bone marrow (Kunde *et al*[13]) in these experimental cretins does not simulate either grossly or microscopically that of pernicious anemia but is rather a fatty marrow with finely granular purple-staining masses occupying the spaces between many of the fat cells. In the center of these spaces are some groups of blood-forming cells. The red cells are few in number, most of them being myelocytes and very few megaloblasts. There are few plasma cells. Some areas were suggestive of what Selling[15] (1911) found after benzol poisoning. Only a few stem cells were present and few reticular cells. Despite this, some areas in each section contained apparently normal bone marrow.

The ovary may present varying stages of development. (Tatum[12]) published cross sections through the ovaries of some cretin rabbits which indicate considerable follicular development. Figure 9 (slide 10) is a photo-micrograph through the ovary of an untreated cretin rabbit showing a large cystic area; much stroma, and

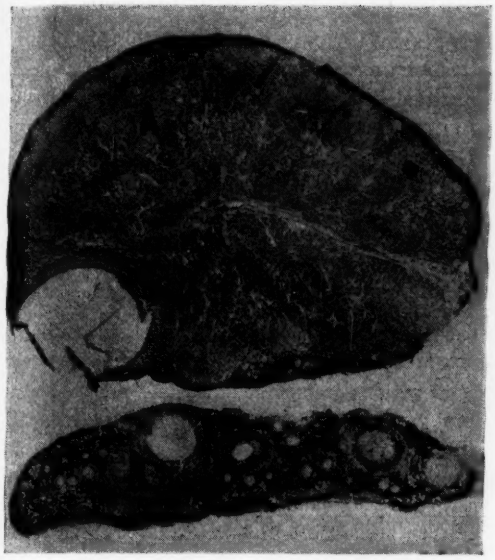


Figure 9. A. Cross section through the ovary of an untreated cretin rabbit, born March 19, 1923. Operated April 4, 1923. Autopsied March 2, 1924; body weight at autopsy 2020 grams. B. Section through the ovary of a cretin rabbit, treated with thyroid. Same age as A.

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few developing follicles (Kunde *et al*[13]). Observations made later on some of the animals in the cretin colony gave evidence of much sex stimulation in those which survived to an age well beyond maturity. These contradictory results on the ovaries must depend on varying degrees of gonad stimulating activity of the anterior pituitary at the time that the animal was sacrificed. It is conceivable that the amount of sex stimulating factor from the anterior pituitary may change as the age of the cretin advances, resulting in a corresponding change in follicle stimulation of the ovary. Reproduction in the cretin rabbit seems to depend on how completely the thyroid was extirpated. In those cretins which we considered absolute, no reproduction was noted, because they usually died seven to nine months after thyroidectomy. But in those showing evidence of appreciable growth, (indicating that a small amount of thyroid gland remained after the operation) reproduction occurred. Litters born to this type of animal were always small in number, but the young were well developed, and seemingly more mature at birth than the average new-born rabbit.

DR. Carlson: I suspect the conclusion you might draw from Dr. Kunde's paper is this: That probably no organ or tissue in the body is quite normal after complete absence of the thyroid. The animal lives, but how? Dr. Kunde forgot to mention one thing in the case of the cretin rabbits. They have to be handled more carefully than human babies, otherwise you lose them all with some kind of respiratory tract infection.

The second paper is by Howard G. Swann, Ph.D. from the University of Chicago.

PITUITARY-THYROID RELATIONS

HOWARD G. SWANN, Ph.D.

CHICAGO

This field of thyroid study is only about twelve years old. Our knowledge has come chiefly from experimental animals. Nonetheless, we have known for a long time that in Sim-

From the Department of Physiology, University of Chicago. Read before the Section on Pediatrics of the Illinois State Medical Society, Chicago May 20, 1941.

monds' disease there is a decrease in the metabolic rate, and so we have suspected that this whole relationship did exist.

Briefly, the experimental facts are these: After hypophysectomy in the experimental animal, the symptoms have many characteristics of hypothyroidism: the basal metabolic rate decreases to hypothyroid levels; growth ceases at once; the animal remains sterile for the rest of its life; amphibia never metamorphose, and so on. If the thyroid is examined after hypophysectomy, it is found to be a quiescent gland, its cells being flat rather than cuboidal. Although large amounts of thyroid colloid are present, the gland in general does appear to be quiescent. Furthermore, we find that we cannot stimulate these glands by any of the common means used to stimulate them into activity. For example, simple goiter can be produced by feeding a diet extremely low in iodine. This reaction is prevented by hypophysectomy. Another stimulus to the thyroid gland is the stimulus of cold. This produces a marked effect; in fact, putting rats into an ice box for two weeks causes their thyroids to become markedly hyperplastic. This reaction also is prevented by hypophysectomy.

This raises an interesting question: does the thyroid function at all after hypophysectomy? That is a question I can raise but not definitely answer. Opinions on it differ. In the rat, for example, if the pituitary is removed, there follows a pronounced hypothyroid metabolic rate of about minus 40. If now the thyroid is also removed, the metabolic rate does not drop any further. This indicates that the thyroid in these hypophysectomized rats is not secreting any hormone. However, when the same experiment is done on the dog, it yields different results. A combination of the two operations will cause a greater decrease in the metabolic rate than a hypophysectomy alone. This experiment is often questioned, however, because the dog is not a very trustworthy animal for use in studies of hypothyroidism. But we do feel certain that after hypophysectomy the thyroid is inactive, sluggish and possibly does not function at all.

Studies of the hormones of the anterior lobe of the pituitary gland have also proven the thyroid-pituitary relationship. The pituitary produces a hormone, called the thyrotropic hormone, which stimulates the thryoid gland. Its effect is a very rapid one. We can perceive changes in thyroid histology within 24 hours after administration of thyrotropin and we can show that these glands are stimulated at once by *in vitro* experiments. Anderson put small pieces of thyroid gland into a microrespirometer and measured their oxygen consumption. He found that if he added to the solution in which these thyroid pieces were metabolizing a small amount of thyrotropic hormone, there was an increase in the metabolic rate to twice the normal rate. The hormone causes the thyroid to consume oxygen faster at once. It has, therefore, a very rapid action; it is probably being secreted constantly, and just as you and I are constantly secreting thyroid hormone, so also we are constantly secreting thyrotropic hormone.

By administering thyrotropic hormone a typical hyperthyroidism can be produced. With it, the guinea pig's metabolic rate can be increased to plus 60 and man's metabolic rate can be increased to plus 59. The other symptoms of hyperthyroidism also follow administration of this substance: tachycardia, exophthalmos, loss of weight, sweating, amphibian metamorphosis, and so on.

The control of the pituitary over the thyroid is abundantly demonstrated experimentally, and it raises at once a very interesting question: Are thyroid diseases due secondarily to pituitary dysfunctions? Myxedema, for example, is due first, certainly, to the deficient secretion of thyroid hormone, but back of that, is the trouble a deficient secretion of the pituitary hormone? And is the same true of Graves' disease? Is the thyroid at fault and that the only thing, or is the pituitary driving the thyroid to secrete too much thyroid hormone with a resultant hyperthyroidism. Opinions on this very interesting question are varied. One group of investigators who have done considerable work on it believe that both kinds of condition exist. What they call thyrogenic myxedema is due primarily to the thyroid and that, rather than the pituitary, is the organ at fault. Among these cases they particularly include those with classical myxedema; in such, there appears to be virtually no thyroid secretion, with a metabolic rate down to minus 30 or 40. Significantly, it is found that these cases will not respond to thyrotropic hormone. It is thought that in such cases there is

a complete absence of thyroid tissue or else that the thyroid is so degenerated that it cannot respond to pituitary hormone. In a second type of case it is thought that the pituitary is at fault. These are cases of milder myxedema. The thyrotropic hormone will act in them as it does in the normal individual and will prevent the condition.

Is this information of any service to the clinician. I am inclined to think not, for the reason that our preparations of thyrotropic hormone are still often poor and irregular and even risky. This report, then, that I have just made is in the nature of an experimental report and not a report leading to a new and more satisfactory therapy. Thyroid therapy is so easy and so clear cut that before we change from it we should certainly have a better treatment. The present preparations of thyrotropic hormone do not fit this qualification.

Now, turning to the child, the same considerations must be given hypothyroidism in the child as in the adult. In certain cases that we know of very well there is congenital absence of the thyroid gland. The cretinism occurring in those cases is due primarily and entirely to the absence of thyroid tissue. These cases are probably rare. Most cretins have small quantities of thyroid tissue left or, for that matter, relatively normal quantities which do not appear to secrete sufficient thyroid hormone. Is the deficiency in such cases due to deficient secretion of the thyroid-stimulating hormone of the pituitary or is it due simply and only to deficient secretion of the thyroid hormone itself? Again, I can raise the question but I am unable to answer it finally.

I want to turn back now to consider some of the defects in growth that Dr. Kunde has described as occurring in cretinism and to examine what we know about the cause of these conditions. You recall that after either thyroidectomy or hypophysectomy there is a cessation in growth. This cessation in growth after thyroidectomy takes a certain amount of time to be apparent, approximately a week or two in the rat. The cessation of growth in the hypophysectomized animal is instantaneous. What is the trouble in these two conditions? Is the essential defect the same in both cases? Or are there two growth defects involved, one defective because the thyroid is in hypofunction and the other defective because the pituitary is in hypofunction?

Experimental work here furnishes interesting clews. Philip Smith, one of the most brilliant scientists we have in this country — the man who really opened wide this tremendous book of pituitary physiology — has used the thyroidectomized and hypophysectomized rat in order to determine the relation of the two glands to growth. He found that by administering various pituitary extracts he could obtain some growth in such preparations. On the other hand, thyroid hormone alone had no effect on their growth at all. It is also known that pituitary extracts will cause some growth in the cretin. Setting these facts together, it appears that the defective growth of the cretin is due to defective secretion by its pituitary. The cretin's sterility is also probably due to a deficient pituitary secretion. The proof of these hypotheses is, however, not yet rigidly clear because Smith also found that better growth in the doubly operated rats was obtained by combining both pituitary and thyroid hormones.

This leads to the conclusion that Dr. Carlson has drawn: namely, that we cannot consider one of these hormones as acting, so to speak, in a vacuum. If one gland is removed, the entire endocrine system probably changes. And the whole endocrine system is unquestionably as widely integrated as the central nervous system.

One aspect of thyroid physiology only recently discovered is the influence of this gland on absorption. After its removal, absorption of all foods stuffs is sluggish and probably incomplete. The cretin, I suspect, is a very poorly nourished animal; a great deal of its defective growth may be due to this factor alone.

Mildly deficient growth in children is, of course, very common. What may the clinician guess as to its etiology — pituitary? thyroid? malnutrition? We need technics for measuring levels of pituitary and thyroid hormones in the blood. In the case of both of them, very promising starts have been made, but as yet the technics are so difficult and so often yield controversial results that they are not of great use. The answer to the whole problem of deficiency in growth is a huge one, with countless facets. We

can look forward to solving it by work from clinicians and experimentalists alike.

Dr. Carlson: Observing animals and not knowing much about children, my impression is that the pure cretin is more stupid than the animal stunted in growth by hypophysectomy.

Next we have a paper by Dr. Helmut P. Seckel of the Department of Pediatrics, University of Chicago, on "Growth and Development in Graves' Disease: With Report of a Puerile Case Associated with an Unverified (Thyrotropic) Pituitary Adenoma."

GROWTH AND DEVELOPMENT IN GRAVE'S DISEASE

With Report of a Puerile Case Associated with an Unverified Thyrotropic Pituitary Adenoma

H. P. G. Seckel, M.D.
CHICAGO

It is only in a limited number of points that hyperthyroidism of childhood is distinguished from the same disease in the adult. One of them concerns the pathology of the thyroid. In children, it is exclusively characterized by a diffuse parenchymatous hypertrophy and hyperplasia of the gland, with associated adenomatous portions occurring in part of the cases. What is known in adult pathology as "toxic adenoma" of the thyroid is unknown in childhood. It is true, thyroid adenomas, and even carcinomas, do occur before adolescence but they never have been reported at this age to be associated with hyperthyroidism.

The clinical picture and diagnosis of Grave's disease of childhood do not materially differ from the well-known symptomatology of adult age. In various leading hospitals in the country, from 55 to 85 per cent of the children have been operated upon, while the rest were submitted to medical therapy. In the case of operation, preoperative Plummer's treatment was given for about two weeks, consisting in the daily administration of 5 to 10 drops of the compound solution of iodine, USP. The standard operation followed was bilateral subtotal thyroidectomy, performed in one stage under general anesthesia. After operation, iodine administration was gradually discontinued. The fatality rate of the operation in children has been between 2.5 and 5 per cent. Medical treatment required bed rest, high caloric diet, sedatives, and iodine administration.

Three points in the clinical picture of child hyperthyroidism particularly attract the pediatrician's attention. They are, (1) the age distribution during childhood, (2) the influence on skeletal growth, and (3) the effect on sexual development. In a fourth section, an unusual case of puerile Grave's disease associated with an unverified pituitary adenoma will be reported.

(1) *Age distribution during childhood.* In the individual experience of the average pediatrician hyperthyroidism is a rare disease. Thus, in studying statistical problems of Grave's disease in childhood, we turn from individual to collective experience. Such may be obtained from two sources of information. One consists in a collection of individual case reports as they have appeared in the world literature. The other is furnished by statistical surveys of large series of cases as they were collected in the leading hospitals for children. The body of this material is listed below:

Atkinson (England, 1938; world literature, 1851 to 1937)	208 Cases
Green and Mora (Chicago, 1931)	26 Cases
Dinsmore (Cleveland, 1932)	57 Cases
Cattell (Boston, 1933)	52 Cases
Bloom (New Orleans, 1935)	40 Cases
Bram (Philadelphia, 1937)	128 Cases
Kennedy (Mayo Clinic, Rochester, Minn., 1940)	171 Cases
Reilly (San Francisco, 1940)	62 Cases

The sum total of this material is about 750 cases. The figure does not include individual case reports published in the literature later than 1937.

The number of children among all cases of Grave's disease irrespective of age is estimated by the above observers at between 1 and 2.5 per cent. Within the age group below 15 years, only 20 to 30 per cent of the childhood cases start out below the age of 10 years, and the onset of hyperthyroidism at or below 5 years is almost a medical curiosity in both sexes. In the latter age

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From the Bobs Roberts Memorial Hospital for Children, The University of Chicago, Chicago, Ill.

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group we find only 7 to 8 per cent of all clinical cases; the higher figure of about 25 per cent in Atkinson's literary series seems to indicate the greater interest in the youngest age group of those observers who deemed it worthwhile to publish their cases. Three quarters of all cases of Grave's disease in children arise at pre-puberity and puberity age. Seven girls are counted on each boy. Thus puberty age and the female sex appear to be predisposing etiological factors in hyperthyroidism of childhood. Not infrequently, heredofamiliarity is also demonstrable in such cases.

For the sake of illustration, a few of the rare instances of hyperthyroidism with onset at or before the age of 5 years may be briefly itemized. There are 54 cases of this kind in Atkinson's collection, 7 of which were less than one year of age at the time of observation. A unique case was published by White, in 1912, under the title, "Congenital Hereditary Grave's Disease". Since the fifth month of her first pregnancy, a young mother developed an increasingly severe hyperthyroidism. The fetal heart rate was well over 200 before delivery. A premature boy was born in whom, besides tachycardia, a loud heart murmur, an exophthalmic stare, and a fine tremor of the hands was present. He died after 36 hours, and at autopsy a very large thyroid with an accessory gland was found. The pituitary, thymus, pancreas, and adrenal glands were normal both, grossly and microscopically. The mother's hyperthyroidism improved after delivery and again became worse during her next (unsuccessful) pregnancy. Ochsner and Thompson, in 1910, have mentioned an observation of Schmauch's which seems very much like that of White's. However, the newborn boy's pulse rate and thyroid were not described, and when his exophthalmos was noticed at the age of 5 weeks, it might have been explained on the basis of his turret head and premature birth; it was still present at the age of 27 months. A premature baby born of a mother with exophthalmic goiter was also described by Faber in 1923. The newborn had a marked exophthalmos, very rapid pulse, great irritability and a high food requirement. As his symptoms spontaneously disappeared within 4 weeks, a diaplacental transmission of thyrotoxicosis from the mother to the fetus seems to offer the best explanation of the case.

An infantile case of hyperthyroidism was described with autopsy by Braid and Neale in 1930. The girl's symptoms had first appeared following bilateral pneumonia at the age of 1 year, and were severely aggravated after measles at 2½ years. Besides the classical symptoms, a 0.12 per cent glycosuria was once observed. Iodine treatment was ineffective. At 2¾ years of age, a right thyroid lobectomy was performed with a fatal outcome at the close of the operation. At necropsy, the remaining thyroid was uniformly enlarged and, like the operative specimen, showed diffuse hyperplasia of the glandular tissue. The thymus was also grossly hyperplastic and weighed 96 instead of a normal 20 gm. Simple hyperplasia of the lymphatic nodules and spleen were also observed. The pituitary and adrenals were normal. The heart was somewhat hypertrophied but histologically normal. Finally, two observations may be mentioned for their long follow-up and impressive illustrations. One of them was published by Dreschfeld in 1898. He presented photographs of a girl before the onset of Grave's disease, (at one year of age), on the peak of the disease at 3½ years of age, and after spontaneous regression of almost all symptoms at 7 years of age. The other observation of this type is that of Patterson's, published in two papers in 1930 and 1935. The exophthalmos is very well seen in a photograph taken at the age of 4 months and is still in evidence at the age of 8 and 14 years, during which period the girl's hyperthyroidism had become more active. No attempt at operative treatment had been made in this case.

(2) *Influence on skeletal growth.* In cretinism and myxedema of childhood, stunted growth in height and retardation of bone development are well-known characteristics. To take an x-ray of the child's wrist and hand is a matter of routine in this condition. By way of contrast, in hyperthyroidism of childhood, one should expect an acceleration of growth in height and skeletal development. This also was hinted at by experiments in young animals fed with thyroid gland. If the world's casuistics of hyperthyroidism in children is checked for this point, one is surprised to find no statement of body height in more than two-thirds of all cases. Similarly, x-ray sudies of the growing centers of the bones appear, for unknown psycholgical reasons, to be-

long to the diagnostic subtleties of child hyperthyroidism. Only occasional papers are specifically concerned with this subject, and remarks in the leading textbooks are also few in number. For instance, Kennedy, in 1940, in his comprehensive article in Brennemann's Practice of Pediatrics, based on 157 cases of the Mayo Clinic, does not even touch upon the problem of growth and development in hyperthyroidism of childhood. Between 1924 and 1936, three papers on osseous development in endocrine disorders were published, in which hyperthyroidism either was not mentioned at all or mere possibilities were speculated upon. The net result of specific investigations of this matter seems to be that skeletal growth is often accelerated in children and adolescents with Grave's disease.

With respect to development of body height, Holmgren, as early as 1909, collected 80 cases of hyperthyroidism of his own observation. He divided them into two groups, one containing 42 cases 12 to 21 years of age, the other 38 cases 22 years of age and over. Thirty-seven cases of Grave's disease below the age of 20 years were included from the literature and 13 controls of non-toxic goiter were also analyzed. Around 80 per cent of the thyrotoxic cases below 20 years were definitely oversize for their age, the average being +5 cm. in the girls and +9.9 cm. in the boys, with maximum heights of 178 and 195 respectively. Some patients were veritable giants, with occasional acromegaloid features. Holmgren came to the conclusion that, when hyperthyroidism set in during the period of body growth up to the age of 21 years, the overwhelming majority of the patients were clearly oversize. However, average height was attained in thyrotoxic cases of 22 years of age and over, and in cases of nontoxic goiter of all age groups.

General statements about acceleration of growth in height in children with Grave's disease of some duration are found in later publications by Cattell (1933), Reilly (1934), Bram (1937), and in a few textbooks. Welti (1937, 1938) published scatter diagrams of body heights of 11 girls and 4 boys with hyperthyroidism; 9 girls and all boys were definitely oversize. The same was true of 36 children in Reilly's series of 44 (1940); he noted rapid statural growth shortly before toxicity became apparent, particularly before puberty age. Another scatter diagram of body heights in young patients with hyperthyroidism was presented by Kennedy (1940), shortly after the publication of his textbook article. Of 14 girls, who had been operated upon before the age of 15 years and were less than 18 years at the time of measurement, 9 were oversize and 5 a little below average for age; all former childhood patients who were measured after the age of 18 years had an average height normal for females of their age. "Children with exophthalmic goiter apparently grow more rapidly than socalled normal children, but their heights ultimately are not greater than or less than average height."

In individual case reports statements of body height are usually missing. Atkinson, in his list of 208 childhood cases from the literature, does not even tabulate the size of the children. Occasionally, however, data are available and seem to indicate excessive statural growth. Holmgren (1909) mentioned a 6 year old physician's daughter with Grave's disease who grew 9½ cm. within 10 months. Also, in Klapper's case (1939), the boy grew from a subnormal 90 cm. to 107.5 cm. during the year preceding operation; at 5½ years he was thyroidectomized and the following year he gained only 8.5 cm. in height. Welti also speaks of postoperative normalization of growth rate.

X-ray studies of bone development in children with Grave's disease were reported for the first time by Holmgren in 1906. In 7 of 9 youngsters aged 13 to 18 years a complete or almost complete premature closure of the epiphyseal lines of the hand skeleton was seen, while the growing zones were still open in the remaining two cases. Abnormally early appearance of ossification centers of the bones with corresponding increase in bone age was mentioned by Cattell (1933) and described in individual cases of child hyperthyroidism by Billmann (1935), Wallis (1935), Crile and Blanton (1937), and Welti (1937, 1938). The chronological age of these children was 2½ to 7 years and their bone age, as judged from the ossification centers of the wrist, was between 5 and 11 years; all these children were also considerably oversize. Welti further presented an x-ray of a knee joint with closed epiphyseal lines in a girl, aged 14 years, with hyperthyroidism, and said he had made similar observations in other cases. He warned that body growth may be completely arrested after thyroidectomy in such children and that it was

wise to take preoperative bone x-rays in order to prove the case. Reilly also reported bone ages of 16 to 18 years in girls aged 13 to 14. The skeletal changes seem all the more pronounced the younger the child, the severer the thyreotoxicosis, and the longer the duration of the disease.

Cattell, Welti, and Reilly further noticed decreased density of bones, zones of decalcification, and osteoporosis in skeletal x-rays of children with Grave's disease. Reilly found negative calcium and phosphorus balances in three osteoporotic cases with a normal distribution of urinary and intestinal excretion of calcium. This effect of thyroxine is well known from animal experimentation.

Advanced dental development was recorded by Crile and Blanton, Welti, Reilly and others. Welti's 5 year old girl had lost all her deciduous teeth at the age of 3½ years and at 5 years had a tooth age of 10.

(3) *Effect on sexual development.* This aspect of child hyperthyroidism has been studied very rarely, and even Holmgren (1909), in his lengthy paper, failed to discuss it. However, he reported menstrual histories in 78 of his own observations which I have analyzed as follows. In 57 of the cases, or 73 per cent, menstruation started at 15 years or under, down to 12 years, in one case even at the age of 9 years; in 21 cases, or 27 per cent, the onset of menstruation was between 16 and 22 years of age. From his study of 208 literature cases, Atkinson came to the conclusion that "the onset of menstruation is often delayed". The same was found by Welti in girls aged 14 to 17; menstruations started late or became irregular and scant to the extent of frank amenorrhea. Following thyroidectomy, "in three girls not yet menstruated the periods have made their appearance and in the other eight girls they were again normalized". In two boys with small testicles and no sexual hair at the age of 12 years, "following thyroidectomy sexual hair appeared in a few months and the testicles rapidly increased in size; in one of the boys an undescended testicle came down into the scrotum". The only boy studied in Reilly's series showed a retarded sexual maturation. Of his 31 girls with hyperthyroidism, 15 had normal menstruations during toxicity and 17 abnormal ones; in 4 cases the periods failed to appear, in another 4 they were scanty, and in 9 cases amenorrhea developed during toxicity. Secondary sexual characteristics often failed to develop, or developed slowly during hyperthyroidism; 2 cases were described as eunuchoidism.

Lehman (1936) is the only author who reported a Grave's disease with a noticeable hypertrophy of the breasts in a girl aged 4 years. He wrote, "Physical overdevelopment as well as precocious sexual development is not uncommon" in hyperthyroidism.

The conflicting experiences of the various clinicians were reflected in an experimental paper by da Costa and Carlson (1931). They found "that desiccated thyroid in large doses retarded sexual maturation of white rats of both sexes while small doses of thyroid tended to accelerate it".

Similar inconsistencies as to sexual development were recorded in patients with hypothyroidism. The usual effect seems to be severe retardation. However, Reilly wrote in 1934, "A somewhat early onset of menses is a not uncommon characteristic of childhood myxedema." A unique observation was published by Kendle in 1905. A cretin girl, younger sister of a cretin boy, had been treated with thyroid up to the age of 3 years. Then medication was gradually stopped. At 5 years of age, the girl began to menstruate, to grow axillary and pubic hair, and to develop full mammae with prominent nipples and hair on the areolae. Under renewed thyroid therapy given at the age of 8, almost all abnormal stigmata disappeared within 9 months and she reverted to a more child-like type of hypothyroid dwarf.

CASE REPORT

An almost unprecedented case of severe Grave's disease associated with an unverified pituitary adenoma has been observed since 1938 in the Bobs Roberts Hospital for Children of the University of Chicago. I am indebted to Dr. Douglas N. Buchanan for permitting me to make use of his neurologic studies of the case.

J. N. W., No. 206073, a white boy aged 7 years, was admitted to the hospital on September 22, 1938. He was born on August 5, 1931, as the second youngest of 6 children of rather old parents. The father had a peptic ulcer for about a year. The boy's personal history as to birth, growth, development and previous illnesses was essentially negative. In the present history there was headache, vomiting and impairment of vision for one year's duration. During this time, the parents also noticed a swelling about his neck, protrusion of the eyes, general nervousness and easy fa-

Figure 1. J.N.W., a boy aged 7 years. Grave's disease associated with presumable pituitary adenoma. Note extreme exophthalmos, empty look of the blind, excessive perspiration and moderate hypertrichosis. Photo taken on Sept. 26, 1938.

tigability. A diagnosis of goiter was made, and he had been taking medicine until two weeks before admission.

On examination, the boy presented a spectacular picture of Grave's disease, and at the same time all the signs and symptoms of an intracranial neoplasm pressing on the optic chiasm were present. He was 6 cm. oversize for his age (126 cm.) and greatly emaciated, with an underweight of 5 kg. (17 kg.). He was exceedingly weak, very irritable, emotionally unstable and apparently of normal intelligence. Anteriorly on the neck there was a firm nodular goiter measuring 6 x 7 cm. over which a bruit was heard. The voice was rough and frequent coughing spells were observed. On account of an extreme exophthalmos the boy's face had a ghastly expression and in addition there was the empty look of the blind (Figure 1). There was also visible perspiration in his face and a certain degree of hypertrichosis about his head; however, his sexual development was normal for his age. His pulse rate at times was as high as 160, the blood pressure 158/72 mm. Hg, the heart slightly enlarged to x-ray, and the B.M.R. plus 34 per cent. There was an almost complete amaurosis and primary optic atrophy. Besides a slight tremor of the fingers and tongue, extreme muscular hypotonia, reduced deep reflexes, and a bilateral positive Babinski's sign, no significant neurological findings were observed. Macewen's sign was absent. With the exception of a slightly enlarged spleen and severe dental caries the clinical findings were negative otherwise. Urine, blood picture, glucose tolerance test, blood N.P.N., and blood cholesterol were normal. On x-ray examination of the skull the sutures were united and the sella turcica was grossly enlarged with erosion of the posterior clinoid processes and excavation beneath the anterior processes (Figure 2). No abnormal calcification was seen. On encephalography, the intra- and suprasellar tumor seemed to project backward and distort the third ventricle.

A clinical diagnosis of severe Grave's disease associated with an intra- and suprasellar tumor was made. It was thought the tumor may be either in the nature of a glioma of the optic chiasm or, more probably, of an adenoma of the anterior pituitary lobe.

TABLE 1.
Body Weight and B.M.R. of J.N.W., boy aged 7 yrs.

Date	Body Weight, Kgm	B.M.R. Per Cent	Remarks
9-24-1938		+ 34	Plummer therapy
9-27-	16.0		from 9-22 to
9-30		+ 15	10-6-1938.
10- 1	15.7		
10- 7			Thyroidectomy
10-18	17.8		
10-25	19.5		
10-28		— 20	
11- 1	20.5		
11- 8	21.5		
11-15	22.6		
11-30	25.0		
12- 2		— 29	
12- 6	25.0		
12-12	25.1		
1-10-1939	27.4		

After two weeks' Plummer's treatment, seven eighths of the goiter were resected by Dr. L. R. Dragstedt. The operative specimen weighed 32 gm. and presented the histological picture of parenchymatous hyperplasia. The postoperative course was comparatively uneventful. The effect of the iodine treatment and thyroidectomy on B.M.R. and body weight is shown in table 1. In the course of 2½ months the B.M.R. dropped from plus 34 to minus 29 per cent and the body weight rose from 15.7 kg. to 27.4 kg. At the same time the pulse rate came down to 80 to 100 and the blood pressure to 120/80 mm. Hg. No signs of myxedema were observed. Blindness was now complete, and headaches, occasional vomiting and horseness of voice persisted. Post-operative x-ray therapy of the region of the sella was entirely ineffective. The boy was sent to a school for the blind where he is living at present.

In a search of the literature it was found that the first example of a basophilic adenoma of the anterior pituitary gland ever described in a necropsy had been clinically associated with Grave's disease in a women 40 years of age (Erdheim, 1910). The only other observation to be compared with our own case was reported by Peters in 1934 under the title, "Pituitary tumor and thyrotropic hormone". The presence in a girl 3 to 8 years of age of a definite Grave's disease and a slowly developing intrasellar tumor with de-

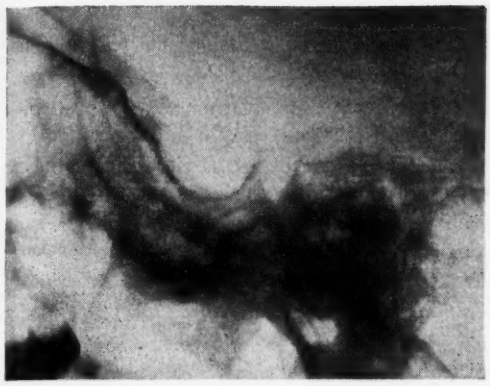

Figure 2. Same patient as Fig. 1. Grossly enlarged sella turcica with deformation of clinoid processes. X-ray taken on Sept. 29, 1938.

struction of the sella and progressive loss of vision was identical with the findings in our case; no autopsy was obtained in Peters' patient, either. However, in her case the symptoms of hyperthyroidism were milder and subsided spontaneously as the pituitary tumor became progressively larger.

Whether the association of Grave's disease with a pituitary adenoma 1.5 mm. in diameter as described in Erdheim's case was in the nature of a pure coincidence or of an etiologic relationship it is hard to tell today. However, in Peters' and our own case a coincidence seems to be out of the question. We feel justified in asserting the hypothesis that in these two cases a primary adenoma of the anterior pituitary gland, by overproducing the thyrotropic hormone, had brought about secondary hyperthyroidism of Grave's disease. Such an adenoma may well be termed "thyrotropic adenoma" of the anterior pituitary. Whether it would have originated from the basophilic or eosinophilic cells of the gland it seems idle to speculate upon, since both appear to have to do with the manufacture of the thyrotropic hormone. Anterior pituitary hormones other than the thyrotropine, e. g. growth hormone or gonadotropines, apparently were not oversecreted in the two cases, unless one would explain the mild hypertrichosis in our boy as the result of adreno-corticotropic secretion.

After the thyrotropine of the anterior pituitary had been discovered, it was time and again suggested that ordinary cases of Grave's disease might be due to an overproduction of that hormone. Some observations indirectly supporting this theory may be listed: (1) Grave's disease preferably starts, or is aggravated, during physiologic growth spurts such as (pre-) puberty or pregnancy, i. e., during periods of overproduction of the growth hormone and other pituitary hormones (Reilly); (2) gigantism and acromegaloid features were repeatedly described in juvenile hyperthyroidism (Holmgren; Reilly); (3) in about 50 per cent of all cases of acromegaly some degree of hyperthyroidism, often frank Grave's disease, is known to be present (Cushing and Davidoff; Davis); (4) the abnormal presence of thyrotropine in the urine was demonstrated in a small percentage of cases of adult hyperthyroidism (Cope: in 2 out of 17 patients examined). In reviewing this subject Cope wrote in conclusion: "Although the hypothesis that Grave's disease is due to an over-production of thyrotropic hormone by the pituitary is a tantalizingly attractive one, yet conclusive evidence supporting such a hypothesis has remained persistently lacking." The case here reported, in conjunction with a similar observation in the literature, seems to give at least presumptive, if not conclusive evidence to support the view that the hypothesis in question is well-grounded on facts in a few selected cases of Grave's disease.

SUMMARY

Hyperthyroidism is a rare disease in children, especially below the age of 5, or even 10 years, and in the male sex. The study of growth and development of such children has been grossly neglected in the literature. From the little that is known it may be concluded that growth in height is often accelerated before the age of 21 years, that ossification centers of the bones may appear in advance of age in younger children, and that closure of epiphyseal lines may be premature in older children and adolescents. Sexual development seems as a rule to be retarded in both sexes, but observations to the contrary are also on record.

A rare case of Grave's disease, associated with a presumable adenoma of the anterior pituitary lobe, is described in a 7 year old boy. It is suggested that in this case hyperthyroidism was brought about indirectly by oversecretion of the thyrotropic hormone on the part of an endocrine tumor of the anterior pituitary. One similar case was found in the world literature, in a girl observed from 3 to 8 years of age.

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Dr. Carlson: We shall next hear from Dr. I. Pat Bronstein.

THE DIAGNOSIS AND PROGNOSIS OF THYROID DEFICIENCY IN CHILDHOOD

I. P. Bronstein, M. D.
CHICAGO

The prognosis of the thyroid deficient child is dependent largely upon the mental and physical development and these rest entirely upon the earliest possible diagnosis, especially so the former. One may challenge the value of thyroid therapy unless ultimate adjustment of these children can be accomplished.

In choosing to discuss these aspects I am prompted by two considerations: First, to point out some diagnostic aids which I believe, though limited in usage, have been responsible for stimulating greater interest in the earlier recognition of thyroid deficient children, particularly under the first year, allowing therapy at a time when greatest success can be achieved. I recognize that the untreated thyroid deficient child who exhibits lack of statural growth with retardation of dentition, sitting, walking and talking, slow mental development and a subnormal body temperature is not a difficult diagnostic problem. Secondly, the opportunity to make coordinated clinical observations over a prolonged period of time in a considerable number of patients has provided accumulated information.

It is unfortunate that time will not permit a discussion of the interrelationships of the thyroid to the other endocrine glands, an understanding of which emphasizes the principle of endocrine balance and integrated hormonal effects and, furthermore, modifies the conception of pure thyroid disease. As early as 1851 it was noted that the pituitary of a goitrous cretin may attain a weight four times the normal. I have often felt that when a cretin is recognized early (and treated effectively) one has a fairly good picture of what is perhaps a simple glandular involvement and such a patient followed for a long period exhibits no symptoms either of thyroid or other endocrine involvement. Thyroid administration corrects both the pituitary and I presume, any unascertainable abnormalities that exist in the other endocrine glands.

Before proceeding to a brief discussion of some of the adjuncts employed in the diagnosis of thyroid deficiency I will enumerate three problems which merit consideration: (1). The question of hypothyroidism with inhibition of growth following thyroidectomy in hyperthyroid children. There has been a number of recent publications of large series. I have had occasion to follow a few such children through puberty and observed no hypothyroidism or interference with growth.

(2). Children who exhibit increased metabolism during adolescence with subsequent exhaustion and reduction in thyroid activity and the development of a goitre which often disappears spontaneously, may be helped by small doses of thyroid extract.

(3). The markedly understatured child, who by thorough study and exclusion is presumed to be a pituitary dwarf exhibiting lowered basal metabolism and delay in carpal development, has interested me. Thyroid administration has been of little value. The interpretation of these two evidences of usually accepted lowered metabolism is problematical.

In discussing reduced metabolism, evidences of which may be alterations in (a) basal rate, (b) blood cholesterol, (c) urinary creatine, (d) blood iodine, and (e) delay in osseous development, epiphyseal closure and dysgenesis, I will not be

From the Department of Pediatrics (Endocrine Clinic) University of Illinois College of Medicine and the Research and Educational Hospital.

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able to review much of the excellent past work but only refer to some of the more recent investigations.

As I followed thyroid deficient children from month to month it became apparent that basal metabolism as ordinarily determined was unreliable because of the lack of cooperation which occurred even in the older patients due to limited mental capacity. Over a period of years I was able to make satisfactory tests in a limited number of cases. Basal metabolism, although a valuable test, is not specific nor should it be a principle guide. Hypometabolism is not necessarily synonymous with hypothyroidism. I need only to call your attention to the obese children in whom on the basis of lowered basal rates socalled borderline thyroid deficiency was diagnosed. In a considerable experience with the usually encountered adiposity there was little other evidence to presume such a diagnosis.

In cretinism we have the additional difficulty of applying normal standards to abnormal physically developed patients. In the present state of knowledge I believe it advisable to make comparison to all standards until far more data are available. One can obtain any basal metabolic rate depending upon whether surface area, height or weight is referred to. The use of urinary preformed creatinine as a criterion for estimating basal metabolism has been questioned.

It is my opinion that the relative changes in the basal rate are more significant than the actual numerical value and that the various readings are peculiar to the individual child. Furthermore, the basal rate determinations proved unsatisfactory since small doses of thyroid extract caused sharp rises leading to an incorrect diagnosis of hyperthyroidism with discontinuance of and interrupted therapy.

The limitation of basal metabolism gave rise to a search for additional indicators of metabolic activity in children. Blood cholesterol offered possibilities in diagnosis and regulation of thyroid dosage inasmuch as the mechanism regulating its metabolism was obscure.

Originally I found the average level of cholesteral 190+ in a number of normal children and an hypercholesteremia in the hypothyroid group. When thyroid therapy was discontinued in thyroid deficient patients the level of cholesterol was augmented. Wilkins recently emphasized the latter point especially in cretins whose clinical signs had disappeared as a result of prolonged therapy.

Chemical methods and the relative values of total blood, serum or plasma cholesterol as well as the significance of the fractions are matters of importance still open to question. A series of total and free cholesterol determinations were made on the whole blood, serum and plasma of a cretin before and after thyroid therapy. There was a significant difference between the values before and after treatment, therefore, each series was considered separately for a statistical analysis.* The total cholesterol values made on whole blood, plasma and serum did not differ significantly from each other. The method of determination did not matter in these results. The range of the free cholesterol was 14 — 55 percent of the total; the average was 32 percent. There did not appear to be any reversal of this ratio before or after treatment. Recently Radwin found that the free serum cholesterol in hypothyroidism before and after therapy was essentially the same as in normal children. He further states that the concentration of total cholesterol, although elevated in most untreated patients with hypothyroidism, may be within normal limits and that total serum lipids are a more valuable diagnostic agent. I have on a number of occasions found normal values for cholesterol in hypothyroid children, especially in infants, eight of whom were recognized well under one year.

A very recent publication by Tobias and Stockford concludes that the level of total cholesterol is a most valid measure of reduced metabolic speed in children and they suggest it as a feasible measure routinely in all newborns and adolescents. From my knowledge of cholesterol fluctuations and its other limitations I cannot share this view of Tobias and Stockford. They emphasize the simplicity of cholesterol determinations and its not being affected by food intake. Other investigators have found that cholesterol is little affected by sex, nutrition and even fat or sterol content of the diet.

In the literature it is usually stated that normally creatine is not found in the urine of the male adult, although there are some controversial reports. Small amounts are excreted periodically

*Mildred Norval, M.S. made the statistical analysis.

in the urine of the adult normal female due to sex hormone influence. In infants and children creatine is physiologic in both sexes and may continue in decreased amounts beyond adolescence. Levine found that prematures may excrete no creatine and this is also true for some very young fullterm infants. This may limit its value as a diagnostic agent in the younger child. Some normal children show decreased creatine early and also periods without creatine by six years.

The tendency of creatine excretion to be low and entirely absent in hypothyroid children suggests it as a diagnostic adjunct in thyroid deficiency. Recently great fluctuations in the levels of creatine excreted by normal children were found by Wilkins and in many cases the excretion was as low as in hypothyroidism. After the fourth year no sharp distinction could be made between the hypothyroid cases and normal children because in each age group there were similar levels of creatine. When thyroid extract is administered to the cretin increased creatine excretion takes place and this has been of value as an aid in following dosage. In studying the response to the daily oral administration of thyroid or to the injection of a single dose of thyroxin Wilkins showed that the effect upon the serum cholesterol seemed better to differentiate the hypothyroid from the normal child than did the change in creatinuria. In regard to the increase in creatine Wilkins found that with thyroid creatinuria first increased and then after a period of weeks, decreased. Certainly there is a need for more detailed studies in normal children on controlled diets and over long periods of time. Creatine studies require hospitalization, a special diet and quantitative collection of urine over long periods. Single determinations on one 24 hour period may be of little value. Marked unexplained fluctuations in the daily excretion of cretaine occurs, both high and low values appearing in cycles, again emphasizing the importance of longer observation periods.

I have done no work in the field of iodine metabolism. Salter's book published in 1940 on the endocrine function of iodine is recommended for an excellent presentation of the subject. I will only mention a few important considerations.

In hypothyroids there is a diminished secretion of hormone from the thyroid gland. In cretinism the gland may contain 1/10 the normal amount of iodine. When the thyroid is removed the normally high iodine content of the pituitary, ovaries and adrenals drops; this suggests the involvement of other organs in thyroid deficiency. There is undoubted relationship between the thyroid and the pituitary mediated through the thyrotropic hormone with which I have had no experience. Wilkins found the determination of this hormone unreliable and of no diagnostic value.

It is not as yet possible to predict from the fasting plasma iodine level whether or not the patient is suffering from lack of thyroid hormone or iodine. In hypothyroidism there is a tendency for the iodine to be low unless the patient is getting iodine from food or medicine. The problem of whether the patient is lacking thryoxine-like material is still in the investigative stage and is dependent upon better measures for fractionation into inorganic and organic iodine since the latter alone is believed to be physiologically active.

There is certainly need for more extensive studies of the metabolism of iodine in thyroid deficiency. Iodine determinations are subject to many misinterpretations and the extent to which they can be utilized is still problematical. Nevertheless, it may hold the key to the situation.

The use of radioactive iodine and the possibility of specific radiation therapy to the thyroid is of interest. The oral administration to cretins of a known amount of radioactive iodine isotope and its uptake by the thyroid gland was determined. The thyroid took up less than 1/10 as much iodine as the glands of normal patients.

The roentgenological assessment of skeletal development has been extensively employed in hypothyroidism as an aid in studying general body maturation. As early as 1896 Hertöghe demonstrated retardation of the carpal bones in cretins. Since the carpal centers are the most accessible they have been used for determining osseous development. We have evidence of some relation between mental and carpal development based on the roentgenograms of the wrists of thirteen of our children secured before and after treatment. Retarded bone age is a reliable index and while it does occur with thyroid deficiency it is not conclusive for hypothyroidism. Many factors and conditions other than decreased thyroid function are involved. Thyroid admin-

istration causes rapid correction of the osseous defect. In hypothyroidism of short duration or in the treated cretin carpal assay has limited value. The absence of the inferior epiphysis of the femur usually present at birth in all newborns, unless there is a frank prematurity, is an interesting finding in congenital sporadic cretinism and may be evidence of retarded osseous development occurring in utero.

The endocrine implications of chondroepiphysitis or epiphyseal dysgenesis characterized roentgenographically by fragmentation, stippling and rarefaction in the developing osseous centers is of interest in relation to hypothyroidism.

Recently in conjunction with Brodie and Engel cephalometric studies were carried out in an appraisal of cranio-facial growth in our thyroid deficient children. The findings indicate reduced growth affected by retardation in velocity rather than by a modification of the pattern of growth. With therapy there is an approach to normal levels of development.

Prognosis is dependent upon early recognition and persistent treatment thereafter. Interrupted therapy, which is quite inadequate, I seldom encounter today. We have a specific in thyroid extract administered orally. In only two instances was thyroxine given parenterally. One, a female cretin, five years of age, had an unusually large tongue that interfered with swallowing; a second came in with an extensive bronchopneumonia and later died, necropsy revealing complete athyreosis. In the growing hypothyroid child the action of the thyroid is anabolic and this can be demonstrated by studies of calcium and nitrogen. Recently the activity of iodinated serum proteins has been described with successful responses in cretinous humans and thyroidectomized rabbits. Iodine which has little calorigenic effect has also been used in children in addition to the specific therapy. I employ ample D in addition to the other vitamins. Anterior pituitary products containing growth units have been administered, however, with no results.

It will be gathered from the short review of the various aids employed, in addition to the well known physical signs, that at the present time from the work of others and my own, there is no general rule by which either the assessment of osseous development, determination of basal metabolic rates or the measurement of blood iodine, cholesterol or urinary creatine can gauge optimal therapy. While the study of these has led to much useful work, they are not as yet exact criteria.

In my experience each case must be studied from the point of view of the physical, osseous and mental growth to determine optimum thyroid ration. Nevertheless, we have employed the following table with many modifications with quite satisfactory results:

Age	*Daily dosage of thyroid extrat*
6 months to 1½ years	gr. ss to gr. i ss
1½ years to 8 years	gr. 1 to gr. iii
8 years to adolescence	gr. i ss to gr. iii

I shall consider prognosis from the point of view of the mental growth, which includes adjustment studies and speech progress, and physical development which includes sexual maturation. Time will not permit a detailed discussion of either of these and I will, therefore, complement this material with a number of slides.

I have been interested in the degree of physical growth possible in the treated cretin .This is determined by the period of recognition, since modification of the growth pattern depends upon this. The physical fitness of these children is judged by repeated physical examinations, height and weight records and osseous growth. Employing the Baldwin chart and arbitrarily defining good as above the median normal, fair as within this level and poor as below this accepted status, I have provisional data on 30 children. Nineteen cases fall in the first category and they represent children recognized between one and seven years and actively treated after recognition. Four cases recognized between seven and eleven years reached a fair standard, while in the realm of poor physical development we encountered seven cases who were not recognized until eleven years or above.

Mental development was determined by psychologic tests over a period of from one to seven years. Unquestionably, inasmuch as some of the children respond poorly to therapy even when this is given promptly the value of early diagnosis and active and persistent treatment thereafter is reflected in the outcome. Although the available evidence indicates that the level of mentality of cretins can but infrequently be brought within the normal range by thyroid therapy, there is a favorable response in many

cases which shows a rough correlation to the intensity of therapy. In the juvenile hypothyroid where the gland is normal at birth and its function is disturbed later by some known or unknown factor, the prognosis is generally better.

Throughout the group there was a slight increase in the intelligence quotient during the period of treatment; moreover, the increase was greatest where tratment was begun early. Although 25 percent of the patients were at the imbecile level and 50 percent at the borderline or high grade defective level, nevertheless, without treatment all of them would probably be at the low level. The response of these children to treatment is of significance. The treatment before referral may not have been as active or persistent for those with the low ratings as for those with the higher ratings. Promptness and continuity of treatment are apparently not the only factors. The glandular dysfunction may have been more severe in those who remained at the lower level than in those at the higher level. In some cases the failure to develop may be due to the fact that the thyroid deficiency was associated with primary feeblemindedness, which was the case in only one of our patients. Any one of a number of factors, therefore, may account for the failure of some children to respond to thyroid treatment. A number of the children were given a variety of performance and achievement tests. From our data there is no evidence that they have any special aptitudes or abilities, nor is there anything to indicate that cretinism is confined to families of low intellectual or social status.

The totally inadequate and defective speech sounds of cretins as well as the relationship of low intelligence to speech status have heretofore been observed only as part of their general symptomatology. On treatment some of the cretins developed language facilities within the short space of six weeks, a phenomenon which normally occupies the period from birth to two to three years of age. This may have some bearing on the development of speech in normal children. I have no explanation for the rapid development of speech; however, it is interesting to speculate that since thyroid activates metabolism and with it mental processes, the sudden release of the speech mechanism by medication may come about in the same manner.

Patients between the ages of 1 and 7 years and those of 17 through 21 years seem to have made the best adjustment and are best accepted by their parents. In the first group, acceptance may be due to the fact that they are still considered babies and are sheltered in the home and the security with their parents may be greater. The older group are able to take care of themselves and cause little disturbance, and their experiences in school and work are fairly successful.

The children between the ages of 7 and 12 years have difficulty in adjusting themselves to other children. They are not sheltered as are the younger ones, and they are making their first attempt to relate themselves with normal children. There is a good deal of sibling rivalry in this group. At this age the parents may be impatient because of the failure to compete successfully with normal children. Between the ages of 12 to 17 years a little better adjustment is made than in the previous group.

Glandular therapy has been successful in helping our children make adequate adjustment by accelerating their physical growth and stimulating them to activity. They are better accepted by their parents and other children because their appearance is more normal and their behavior is more like that of children of the same chronologic age. The adjustment of the older group suggests that, even with low intelligence, treated thyroid deficient children are able, provided that the family attitude is healthy, to be partially self-supporting and work out satisfactory relationships in and out of the home.

DISCUSSION

Dr. Carlson: I would like to make one suggestion to Dr. Bronstein who said that in this seven months old cretin there was no thyroid; I wish he had said no thyroid was found. The fact that we do not find it does not mean that we have not overlooked it somewhere.

We shall now start the discussion and consider the questions which have been sent in.

Question: May disabled thyroid activity be a factor in the etiology of clinical rickets? If so, to what extent?

Dr. Kunde: I think that is a question which is very important and significant in the practice of pediatrics. I have heard excellent pediatricians say that in some of their experiences they have found rickets in very rapidly growing children where an adequate vitamin balance seemed to be present. Rickets is virtually inseparable from the problem of growth.

So is the thyroid physiology in the young linked with the problem of growth. You get no rickets unless there is growth. That we demonstrated in our animals, and I know pediatricians have the same viewpoint. We watch the rapidly growing child for the appearance of rickets. If a child is growing very rapidly that should mean there is adequate thyroid hormone, but there may be imperfect balance between the thyroid and vitamins. It should do away with the possibility of us trying to remedy this with thyroid. I think we have to study the entire metabolic state of the child very critically and very carefully before we begin any specific therapy.

I am sure I would take some exception to Dr. Bronstein in some of his presentations. It is true that we find rickets invariably in all thyroidectomized animals of every species we have studied. We also found a practically normal calcium content of the serum and a low acid phosphorus.

No amount of antirachitic substances prevents rickets in cretin rabbits completely. I think in the growing child with rickets we must analyze carefully; is there an endocrine imbalance? Would it seem advisable to give thyroid? I think in a real obstinate case of rickets I would give small doses of thyroid and watch the rickets.

Dr. Swann: In recent studies, attention has been called to deficient absorption present in thyroidectomized animals and in the human as well. I would suggest that perhaps these cretins were not able to absorb the vitamins in the diet, Parenteral administration might cure the condition.

Dr. Bronstein: May I say that in pediatric practice the fat and fast growing child may develop rickets. It is very interesting that recently I have seen some children who were considerably underweight and received no vitamins who showed very little evidence of rachitic changes in the bones.

Dr. Kunde: We all see many demonstrations of that. I also think we have to consider the permeability of the cells. Perhaps the vitamins have a different threshold of permeability than the hormones; maybe the hormone changes the permeability rather markedly. It is a very interesting question and I am sure we will not solve it this afternoon.

Question: Why do certain hypothyroid individuals react more severely to thyroid administration than do normal individuals?

Dr. Carlson: Who is normal and when? I remember in my advanced course on the endocrine glands at the University we used to run an experiment on ourselves. Every student took ½ gram of thyroid daily and studied the effects. These students were presumably all normal. Once or twice one of these students has gone clear off on that amount of thyroid. Was he normal or not? Was he afraid of taking a poison or what? But some apparently normal individuals will go off on a very small amount of thyroid.

Dr. Kunde: I would like to remind the group that I showed that picture of Benny the cretin. He was one of the most carefully studied cretins ever published and DuBois could not find a dose of thyroid small enough for him to tolerate. The smallest possible dose seemed to be followed by untoward symptoms.

Dr. Carlson: I remember work done in which a very young rabbit and a cretin rabbit of equal weights were used. The cretin rabbit tolerated less thyroid than the normal rabbit. There is some factor of resistance in this problem and that resistance is lowered when you have produced that degree of cretinism for some time.

Dr. Swann: The totally thyroidectomized animal is very sensitive to thyroxine — 30 times more than the normal, in fact. Sensitivity to thyroid is directly related to the degree of cretinism; that is, the more cretinoid, the less thyroid the individual can tolerate.

Dr. Bronstein: Some workers who have had experience with older cretins have remarked that thyroid extract in these people is of limited value besides making them irritable. In this boy of 23 I have observed no such phenomenon. He has grown a little and gets along fairly well.

As to the question Dr. Carlson brought up about the difference in tolerance, I have taken 3 grains of thyroid with little effect, and yet I know a man in one of our departments who on ¼ grain insists that he feels perfectly well and when that dose is increased to ½ grain or more it "sends him off." I do not know how much that observation is worth.

Originally in the work on basal metabolism, I thought that blood cholesterols might help us in determining accurate dosage. I had several children in whom 3 grains of thyroid had no more effect on the blood cholesterol than 2 grains.

Question: Is an individual who is sensitive to thyroid apt to have any other sensitivity?

Dr. Carlson: The only situation I know is the unusual sensitivity to insulin.

Dr. Swann: These patients are more sensitive to morphine.

Dr. Carlson: There is very little information on this, so far as I know. I would say the question, which is fundamental, cannot be answered on what we know today. I wonder whether it is not a part of the general picture. I had a colleague once who got genuinely drunk on one glass of ordinary beer. That was unusual sensitivity.

Dr. Bronstein: What about the sensitivity of patients with Addison's disease?

Dr. Carlson: I do not know whether thyroid has been used.

Dr. Kunde: Thyroid does not help them any.

Question: Is the therapeutic test of thyroid hypofunction safe?

Dr. Bronstein: From my experience I believe it has value.

Dr. Carlson: Is it safe? My answer would be yes. I think it is safe in the hands of a competent person. Is it a practical method? My answer to that is yes. It is not very quantitative unless you have laboratory methods available.

Question: Will you suggest why some whole pituitary gland products have some therapeutic effect by mouth while others do not?

Dr. Carlson: I would like to know what his evidence is for the positive part of the question. Are any of the whole pituitary gland products therapeutically active by mouth? They are helpful to the manufacturers but are they helpful to the patient?

Dr. Bronstein: I would say that they are of little value.

Dr. Carlson: Once upon a time Dr. Collip spoke at a meeting on this problem and I listened to him and I started to question him, and he admitted that his evidence was not very good, and I think he has changed his mind.

Dr. Swann: Experimentally we cannot prove that any of them is active by mouth.

Dr. Carlson: These excellent men, like Dr. Smith, used them to control their animals that were hypophysectomized, and they got nothing. When they planted the whole fresh pituitary in the abdomen under the skin they got some good evidence. I would have to have pretty good evidence that it works by mouth in man; I have not seen it.

Dr. Kunde: I think there is some evidence of the sex stimulating factor working by mouth. I say that because I have had considerable experience giving this to women with endocrine amenorrhea and if one gives a sufficient quantity I would say that it has some effect. I am speaking now only of the sex stimulating factor of the anterior lobe. That is not easily destroyed. I have a number of young women patients who menstruate perhaps only every two or three months and then scantily; other functions are seemingly normal. Pelvic examination may show an infantile condition of the female reproductive organs, but otherwise normal. I can by properly regulated dosage and giving this substance at certain intervals in the cycle, get a menstrual period every twenty-eight days. As soon as I stop they revert back to their former sluggish menstrual condition.

Dr. Carlson: Have you tried placebos?

Dr. Kunde: No. I use dessicated anterior pituitary and I give it by Kerokote capsule in large doses.

Dr. Carlson: I must remind you that if you give overwhelming amounts, such as 2000 to 3000 units of insulin, you do get some absorption from the gut. So by flooding the system with some of the hormones you may get a little gut absorption. There may be absorption under the tongue or in the mouth and pharynx, but for all practical purposes there have been very little evidences to prove their worth by mouth.

I would like to remind you of what we did in the way of ovarian hormones by mouth before we knew anything about their solubility. What we did was to degrease, de-fat the ovary so that it was nice and clean and the fat and the fat solvent was thrown away, and that part contained the hormone. The remaining inactive stuff was given to women to cure their specific disturbances. To me there is still no good evidence that the pituitary factor is active by mouth.

Dr. Bronstein: In my reading, when somebody asks why thyroid is so effective by mouth, it has been said that if you go back in the lower animals, thyroid is secreted into the gastro-intestinal tract and was effective.

Dr. Carlson: Who would tell you such fairy tales? I do not know of any animal in whom this is true. There is no thyroid below the vertebrates. This is one of those armchair speculations that may bluff the ignorant. There is nothing to it.

Question: A girl, now fourteen years of age is on thyroid extract 1 grain t.i.d.; her basal metabolic rate is still minus 20. She has been on thyroid extract for four years. Recently ½ c.c. of anterior pituitary extract was started every third day. She is two inches taller than normal but her weight is normal; there have never been any mental retardation or excessive hair. Menstrual periods are normal now with ovarian concentrates. Should thyroid extract be continued?

Dr. Carlson: This is a good question. I am glad I do not have to answer it. I wish my freshman medical students were here, because they would realize that when you are out on duty you are faced with more difficult research problems then you face in the laboratory.

Dr. Bronstein: I think this comes back to what I agreed with be[illegible], that a lowered basal metabolic rate is not speci[illegible]or hypothyroidism.

Dr. Carlson: [illegible] this necessarily abnormal? A plus or minus 10 pe[illegible]ent is normal, and I believe in an occasional indi[illegible]al a minus 20 is normal. That is the only cauti[illegible] want to make: it is not necessarily abnormal be[illegible]he basal metabolic rate is not a straight line. [illegible]I remember our debate with Lusk about that. [illegible]sisted that the basal metabolic rate for any spec[illegible]nder the same conditions was a straight line. [illegible]ourse, that is not so.

Question: [illegible]d there not be other physical phenomena t[illegible]would tell of the subnormal conditions of this [illegible]?

Dr. Carls[illegible]hat low basal rate was really due to too littl[illegible] hormone, then there should be other signs of h[illegible]yroidism.

Question: Ho[illegible] efficacious is anterior pituitary extract in controlli[illegible] a low basal metabolic rate?

Dr. Swann: I hesitate to answer that.

Dr. Carlson: I remember years ago somebody who tried administering pituitary extract to overcome the low basal in an experimental cretin; it did not work. Of course, they did not have good extracts then.

Dr. Swann: They have only poor extracts today.

Dr. Carlson: I was a little surprised that Dr. Swann did not mention this difficulty when you try to produce a continued hyperplasia of the thyroid and continued hyperthyroidism by the continued administration of thyrotropin pituitary hormone. You fail in a few weeks or months.

Dr. Swann: Raising that question is like saying, how do you feel about the war? The subject of antihormones is still so controversial that it is difficult to say anything definite about it at all.

Dr. Carlson: But I think this group, which may not follow the more ultra-scientific literature, should know that that question is before us. It raises the question of whether the pituitary over-secretion can produce and can keep up the hyperthyroidism that lasts for ten years.

Dr. Swann: It was that in mind that made me slow in answering. Individuals do not respond to commercial products after a long period of time. That is only one of the reasons why the available products are poor, and so, by and large, I think the chronic administration of these substances is to be avoided if possible.

Dr. Bronstein: I wonder, when this question was asked, did the doctor have any particular product in mind? Was it the sex or growth hormone?

Doctor: This youngster is over-height. Should the growth hormone be given? I am controlling, or trying to control, the low basal metabolic rate, but I wonder if it is dangerous to give the anterior pituitary extract.

Dr. Bronstein: I would say that it would be dangerous, assuming that the growth products are very active, which I doubt. I agree with Dr. Carlson that a minus 20 may be normal in this case. If you assume that the products which are purely growth stimulating are very active and if the epiphyses are closed in that child, then the danger of producing acromegaly is possible, but so far as I am concerned the growth hormones on the market are not very effective. In animals the growth material will work very beautifully but in humans it does not. If you have a child who is under-height and whose epiphyses are open and give him growth material, I am not impressed with the potentialities of the materials on the market today.

Dr. Carlson: Yes, but look at the difference between the clinical experience on a healthy animal and the work on this unknown child who comes to you. You take an animal which, so far as you know, is healthy; take out the anterior pituitary lobe and then give it these extracts and you get results. Just now here comes a patient who is undergrowth or overgrowth. You are guessing as to whether it is pituitary hypo- or hyperfunction. There may be a great many other factors, and that is why we do not get 100 per cent success with hormone therapy in the human such as we have in monkeys or lower animals. There you start out with a normal animal and you do one thing and it works. But in the human you are guessing that one link and only that link is broken. Evidently that is not so; it is much more complicated.

Dr. Kunde: I would like to say something that pertains in general. I think we should bear in mind that the basal metabolic standards we are following have been made on normal people, and many times we are trying to determine whether an abnormal person has a normal basal metabolic rate or not. That pertains to the kind of individual someone mentioned. Here is a boy, a Froelich's case, who is two inches taller than average for his age and much heavier, and he has a basal metabolic rate of minus 15 or 20. Is he or is he not a hypothyroid? We look at the basal metabolic rate alone and compare it to the standard and we see the minus 20 and decide it is hypothyroidism. We must remember that that measuring stick used does not pertain to this boy at all. We are using a measuring stick which pertains to a normal boy and, therefore, I feel sure that in the absence of other hypothyroid findings in these cases we should not administer thyroid extract.

In my experience, findings other than the basal metabolism are helpful in diagnosing hypothyroidism. They are the same findings following thyroidectomy in the laboratory animal where we have no complications except the hypothyroidism. These findings are as follows: The body temperature is slightly subnormal, a minus 1 at least; that was invariable in all our cretin animals; there was always an anemia, which was a characteristic hyperchromatic anemia following thyroidectomy in all our animals; there was also a marked increase in cholesterol content of the blood after thyroidectomy; it would reach perhaps double the normal value. Those findings in a child — dwarfing in growth, anemia, hypercholesterolemia, subnormal temperature — are very much more accurate than the basal metabolic rate. We must also make careful x-ray studies of the epiphyses which in hypothyroidism show a typical retarded developmental pattern.

Question: Is there any contraindication to the use of thyroid in a person who wants to lose weight?

Dr. Kunde: In Dr. Carlson's laboratory we showed very clearly that the administration of a hormone to an animal having a gland that fabricated that specific hormone normally was deleterious to that normal gland. I fed thyroid to normal animals and on removal of their thyroid glands found much thyroid destruction. I think it is injurious to give it if the gland is functioning normally. I would not give thyroid to a child whose clinical findings do not indicate a thyroid deficiency.

Dr. Bronstein: It has been shown that where thyroid is given in such a case atrophy may take place.

Dr. Carlson: This is a very good question and I agree with Dr. Kunde practically 100 per cent, but I would remind this audience of this: If you give enough thyroid to an obese person he or she will lose some weight, but you also know that that is one of the methods of the quack. You might reason that thyroid substance is safer in the hands of the doctor than in the hands of the layman. I do not believe that future experience will show that thyroid is a safe obesity cure, even in the hands of a doctor. I admit the human animal is difficult; he can stand a great deal before he is killed. I am not sure that he can stand a great deal before he is injured.

Little Miss Muffet decided to rough it
In a cabin both old and medieval:
A soldier espied her,
And plied her with cider,
And now she's the forest's prime evil.
—Yank.

OBSERVATIONS ON BACTERIAL ALLERGY IN SCARLET FEVER

JAMES A. CONNER, M.D.
Assistant Medical Superintendent, Municipal Contagious Disease Hospital, Chicago, Illinois
AND
ALBERT MILZER, PH.D.
Research Bacteriologist

Occasional attacks of urticaria have been seen in the past in patients convalescing from scarlet fever at the Municipal Contagious Disease Hospital. When there was no apparent cause, such as scarlatinal streptococcus antitoxin or possibly human convalescent scarlet fever serum administration, then food allergy was blamed for the urticaria. The severity of an urticaria focused our attention upon the possibility that our usual explanation was not adequate, and studies were instituted to ascertain the cause. The early studies indicated the possibility of bacterial allergy as a cause of the urticaria, and a preliminary report was made.[1] The following three case reports are presented.

Case Report I R.B. A 25 year old male was admitted to the Municipal Contagious Disease Hospital on April 18, 1940, the fourth day of a typical moderately severe attack of scarlet fever. He received 40 cc. of convalescent serum intravenously on admission. His temperature dropped, rash faded promptly, and convalescence was uneventful until the seventh day of hospitalization or the 11th day of disease, when an attack of severe giant urticaria developed. Attempts to control the urticaria with adrenalin were unsuccessful because the side reactions were so severe. The urticaria lasted eight days, accompanied by fever of 100 to 101° F. and arthritis for the first three days. The symptoms were not affected by calcium gluconate or histaminase given intravenously. The administration of human convalescent serum was considered the probable cause of the symptoms.

However, at this time we discovered that the patient had a very unusual and interesting history. He was hospitalized at the Municipal Contagious Disease Hospital both in 1934 and 1936 for previous typical attacks of uncomplicated scarlet fever. A review of the hospital charts revealed that he had suffered with urticaria in 1936 during his second attack. It is particularly interesting that he had received no convalescent serum for either prior admission, yet urticaria had appeared with the second attack. The first episode began on the 11th day of disease, lasted three days, and required ephedrine and amytal for relief. It is significant that other than the two instances of urticaria described, the patient had experienced no allergic symptoms. In view of the history, we felt that the cause of the urticaria should be investigated. The concomitant appearance of scarlet fever and urticaria twice led us to consider the possible rôle of the hemolytic streptococcus as the agent responsible for the allergy.

Pure cultures of hemolytic streptococci were isolated from the patient's throat and grown in veal infusion broth of pH 7.4 incubated at 37° C. The following testing materials were prepared: (1) 48 hour broth cultures killed by 1/5000 merthiolate, (2) the same culture washed three times with sterile 0.85 percent salt solution and resuspended in salt solution, and (3) heated and unheated Berkefeld N culture filtrates. The heated filtrate was prepared by incubation in a water bath at 80° C. for 1 hour.

On the 28th day of disease intradermal injections of 0.1 cc. of the above materials were made into the volar surface of the forearm. In addition to the above, control inoculations of horse serum, human convalescent scarlet fever serum, and sterile broth of the same batch used to culture the streptococci were made. The reactions were noted and measured at one hour and 24 hour intervals. There was no reactions to sterile broth, unheated filtrate, heated filtrate, convalescent serum, and horse serum at both readings. The killed washed culture at one hour produced a moderate redness and mild edema measuring 1.5 x 1.8 cms. At 24 hours it had subsided and measured 0.5 x 0.5 cms., but the area was still red and indurated. The killed broth culture gave a more severe immediate reaction at one hour which measured 2.0 x 2.0 cms.; at 24 hours it had subsided to practically the same size as the reaction from the washed culture.

Case II — F.A. — A boy of 11 years of age was admitted to the Hospital on April 27, 1940, on the 9th day of disease, at which time he was convalescent. He did not receive any convalescent serum or antitoxin on admission or prior to admission. He developed a moderate urticaria without fever on the 20th day of disease, which lasted for three days. This urticaria required calomine lotion, ephedrine, and amytal for relief. Since this was almost coincidental with the first case, the same procedure of skin testing was followed using testing materials prepared from the homologous strain of hemolytic streptococcus. The reactions to the sterile broth, the unheated filtrate, the heated filtrate, and human convalescent serum were negative at the end of one and 24 hours. The killed washed culture, the killed broth culture, and the normal horse serum gave both immediate (one hour) reactions and 24 hour positive reactions. The reaction to the broth culture measured 1.7 x 1.7 cms. in one hour; and at 24 hours it was red and indurated and measured 3 x 3.5 cms. The washed culture reaction

From the Municipal Contagious Disease Hospital, Chicago Department of Health and the Samuel Deutsch Serum Center, Michael Reese Hospital, Chicago, Illinois.

measured 2 x 2 cms., and was red and indurated both at one and 24 hours. The normal horse serum produced reactions the same size and character as the washed culture.

Case III — M.M. A 16 year old girl was admitted to the Hospital on the 8th of August, 1940, on the second day of a moderate attack of scarlet fever. She received 20 cc. of human convalescent serum intravenously upon admission. On August 11, 1940, three days later, she developed edema of the lips, severe urticaria and an elevation in temperature of 2 degrees (F.). This urticaria was of 4 days duration. In view of our previous experience the same procedure of skin testing was followed. The reactions to convalescent serum, sterile broth, heated and unheated filtrates, and horse serum were all negative at both readings. The broth culture gave both immediate (one hour) 3 x 3 cms. and 24 hours 2 x 2 cms. reactions which were red and indurated. The washed culture was positive at one hour, measuring 0.5 x 0.5 cms. but negative at 24 hours. The materials from the previous two cases were then injected into this third patient. It was of interest that she was sensitive to the broth cultures from the previous two cases. The broth culture from Case I caused a positive reaction measuring 0.5 x 0.5 cms. in one hour, which was still red and indurated at the end of 24 hours. The broth culture from Case II produced a reaction in one hour, measuring 2 x 2 cms., which was red and edematous and subsided to 0.5 x 0.5 cms. in 24 hours. The reactions were not as marked as those appearing in the first two cases.

As a matter of passing interest, all these patients had negative Dick tests upon discharge.

DISCUSSION

Due to the small number of cases studied, no definite conclusions can be drawn. However, the responses described above indicate that the hemolytic streptococcus may have been implicated in the appearance of urticaria. It appears that an incubation period occurred and in this respect resembles the allergic response seen in patients who have received horse serum or other known sensitizing materials. However, at no time has high fever been noted, which commonly accompanies the manifestations of serum sickness. There was an incubation period comparable to that seen in horse serum sensitivity in only one case (the third). The other patients developed their urticaria rather late in the course of the disease. It is a matter for speculation if the first patient had been sensitized to the hemolytic streptococci and their products during his former attacks, which may explain the increasingly severe reactions seen on his second and third attacks of scarlet fever. It should be noted that these patients had uncomplicated scarlet fever.

It appears that the skin reactions observed are separate and distinct from that produced by the Dick toxin and might have resulted from hypersensitivity to the whole hemolytic streptococcus or some of its antigenic components rather than to its toxic filtrates. The urticaria appeared when the patients were convalescing and gave negative skin reactions to the Dick and homologous toxins. Goodall and Washbourn[2] described an uncommon secondary rash which occurs most frequently during the second and third week of scarlet fever and which is distinct from the punctuate erythema present at the onset of disease. They do not attempt to explain the cause but call attention to the close resemblance of this rash to the urticarial eruption following the injection of therapeutic sera. Our observations appear analogous to those of Derick and Swift[3] who observed a secondary skin reaction at the primary site of inoculation in rabbits inoculated with non-hemolytic streptococci by the intracutaneous route about 10 days previously. The primary reaction had receded at the time of the secondary reaction. Coincident with the appearance of this secondary reaction, the rabbits were hypersensitive to the inoculated streptococci and exhibited cutaneous, corneal, and toxic reactions similar to those produced by tuberculin. These workers believe that a sufficient amount of residual antigen remains at the site of inoculation to react by recurrence of acute inflammation when the animal has developed hypersensitiveness as the result of inoculation with the bacteria. Neill and Fleming[4] have described an "immediate[11] skin reaction to derivatives of the diphtheria bacillus distinct from the "delayed" or "pseudoreaction" usually seen in adults. Unlike our cases, the skin reaction was invoked, not only by washed killed bacterial suspensions, but also by filtrates of broth cultures.

Many investigations have demonstrated repeatedly that man and other animals can be sensitized to killed bacteria and their products. The tuberculin test is a well known example of this type of bacterial allergy. The typhoidin reaction of Gay and Force,[5] which is positive in individuals immunized with typhoid vaccine or

recovered from an attack of typhoid fever, was one of the earliest to be published. Specific allergic skin reactions are of diagnostic value in bacterial infections such as glanders (mallein) and infectious abortion of cattle (abortin) and in parasitic disease, such as trichiniasis, hydatid disease, and metazoan infections.[5]

Because this is a preliminary report, much remains to be done in studying the possible correlation of bacterial allergy to hemorrhagic nephritis and non-suppurative arthritis observed during an attack of scarlet fever. These complications are usually rather self limited, respond readily to symptomatic treatment and apparently leave no residua. It is commonly believed that the arthritis of scarlet fever is usually accompanied by some cardiac lesion. In our experience, it is extremely unusual to find cardiac lesions appearing in these patients.

The possibility of human convalescent serum as the cause has been considered and apparently at least in these cases does not appear to have any relation to the urticaria. In the past, the appearance of urticaria has been attributed to human convalescent serum when this material was used. If no serum had been given, then food allergy was casually accepted as the cause. However, the patient usually recovered promptly without a change in diet; furthermore, patients who were known to be sensitive to certain foods in the diet did not manifest any symptoms. It appears that in the future more consideration must be given to the probable rôle of hemolytic streptococci in the production of urticaria.

An accurate survey has not been made of the cases of urticaria observed in scarlet fever at the Municipal Contagious Disease Hospital, but the number is very small and estimated to be approximately 0.5 percent. The procedure of attempting to reproduce an attack of urticaria by means of intramuscular or intravenous injection of the presumably sensitizing materials was not attempted. The patients were at the end of their quarantine period when tested and did not remain in the hospital for further study. Also, the risk of severe reactions deterred this type of investigation.

SUMMARY

Three patients that developed urticaria while convalescing from uncomplicated scarlet fever were tested with various preparations from the hemolytic streptococci isolated from their throats. Positive skin reactions were constantly observed from the intradermal inoculation of suspensions of killed washed and broth cultures, while heated and unheated Berkefeld filtrates, Dick toxin, and human convalescent serum gave no reaction.

One patient had three attacks of scarlet fever for which he was hospitalized. He had a mild urticaria with his second attack of scarlet fever, and a severe urticaria with his third attack.

The possibility of bacterial allergy as a cause is presented, and the possible correlation of such allergy to delayed or late hemorrhagic nephritis and nonsuppurative arthritis is considered.

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Tuberculosis work has consistently stressed the major importance of positive health, of being more physically fit than the immediate demands of your life seem to require. This we may well call the margin of safety in living. Doctor Edward L. Trudeau was not quite wise in advocating too early exercise for his patients but he was basically sound in his faith in the health-giving power of the outdoor life.

It its advocacy of personal hygiene, of physical fitness as a worthy objective *per se*, the tuberculosis control movement has led the field. It has the position of spike horse on the public health team and has trampled a path for the others to follow. Kendall Emerson, M.D.

Men of good-will are always at peace; men of good repute and dignity are men of good-will.—*Baltasar Gracián.*

STUDIES INDICATE PROSTIGMINE MAY BE OF VALUE IN TREATING POLIOMYELITIS

Preliminary studies of the use of prostigmine as an adjunct in the treatment of infantile paralysis suggest that it has important effects on the spinal cord in man which appear to be of value in the treatment of the disease, Herman Kabat, M.D., Ph.D., and Miland E. Knapp, M.D., Minneapolis, report in *The Journal of the American Medical Association* for August 7. Prostigmine is a drug known for its stimulating action on muscles.

Drs. Kabat and Knapp say that in their studies "The approach to therapy (treatment) has been based on the (Sister Elizabeth) Kenny concept of the disease. In a series of 20 patients, most of whom were in the subacute stage of the disease, the results have been encouraging. The drug significantly increased the rage of passive motion (of involved muscles), decreased or eliminated deformities in some instances by relaxation of hypertonus (muscular rigidity) and in some cases improved active motion. In a number of instances muscle spasm has shown more rapid improvement when prostigmine was added to the Kenny routine. In a majority of cases the drug appeared to accelerate recovery."

The 20 patients were given the drug by injection beneath the skin, by mouth or by both routes as an adjunct in treatment. "In almost all cases," the two physicians say, "hot foments were continued throughout the period of prostigmine administration. . . . Seventeen of the patients were in subacute stages of the disease, ranging from two to six months following the onset. There were 2 patients with acute poliomyelitis at three to four weeks after onset and 1 with chronic poliomyelitis at sixteen months after onset.

"The improvement following prostigmine was clearly demonstrable in many subacute cases despite the continuation of the other forms of therapy. The acute cases showed improvement immediately after initiation of prostigmine therapy that was apparently more rapid than the improvement usually noted in such cases with hot foments alone. However, this is difficult to evaluate since the patients were progressing satisfactorily with the hot foments. A large series of acute cases will be necessary to establish the value of prostigmine. The 1 case studied sixteen months after the onset showed definite improvement, but more such cases must be investigated before one can say that prostigmine is of value in the chronic stage. . . .

"It is difficult to evaluate the improvement resulting from therapy in poliomyelitis. The disease is variable in the distribution and severity of involvement as well as in its course. Therefore it is often a problem to predict accurately the rapidity of recovery that would have ensued had treatment not been given. An additional variable was introduced in this investigation by the fact that hot foments were continued during the period of prostigmine therapy. In several cases rapid progress was seen with prostigmine, although the hot foments were discontinued during this period. The rapidity of improvement with prostigmine therapy in some cases suggests definite therapeutic benefit from the drug. In other cases one could not be certain that the improvement was due to the drug; 2 patients with severe involvement showed little recovery."

QUERIES INDICATE FUEL OIL RATIONING DID NOT IMPAIR PUBLIC HEALTH

Replies to inquiries sent public health officers in nineteen states and the District of Columbia about fuel oil rationing last winter indicate that no impairment of public health resulted from rationing fuel oil and that the ration order needs only minor adjustments to satisfy all public health requirements, Joel Dean, Director, Fuel Rationing Division, Office of Price Administration, Washington, D. C., declares in *The Journal of the American Medical Association* for June 19. Mr. Dean says:

"When it became clear that fuel oil would be rationed in a majority of the states, grave concern was felt for the effect on the public health. Many and dire were the prophecies of epidemics of communicable disease and of deaths from pneumonia, influenza and other respiratory ailments, and of resulting breakdown of public morale. A study of the medical aspect of fuel rationing was conducted by Leverett D. Bristol, and the findings were used as a basis of ration order 11 (fuel oil), which became effective Oct. 22, 1942. . . .

"From time to time, especially during the first two or three months, alarming reports of illness, epidemic and death reached the national office. Every such case was investigated promptly in order to provide immediate relief if needed. No single case of death due to fuel oil rationing directly or indirectly has been substantiated nor any epidemic unearthed that could be laid to fuel oil rationing. In almost every report of sickness or other hardship, investigation showed either that relief had already been afforded through action of the local war price and rationing board or that the condition had been grossly exaggerated. . . .

"Notwithstanding our growing disillusionment, we never permitted ourselves to relax our vigilance, and every reported case was investigated promptly and thoroughly. With a program operative in thirty-three states and the

District of Columbia, and administered by thousands of local officials, it was inevitable that some genuine cases appeared, and even a few that had been badly handled. The percentage of these was so small, however, that the conclusion we reached in the Fuel Rationing Division was that no real detriment to public health had resulted from ration order 11.

"We felt nevertheless that, before entering on the second heating season under fuel rationing, this conclusion should be checked against experience of public health authorities throughout the rationed area. On Feb. 23, 1943, therefore, I addressed a letter to representative health officers requesting information (1) as to how fuel oil rationing had affected public health and (2) as to what changes in the regulation were recommended from that point of view and (3) as to whether a general conference of public health officials should be convened to discuss revision of the rationing plan. Replies were received from city, county and state officers of nineteen states and the District of Columbia.

"Significantly, the fourteen states not represented in the replies are those which have had less severe weather and from which fewer hardship cases have been reported. It is a reasonable inference that failure to reply is equivalent to a statement that no serious impairment of public health was observed in those states. It is not the experience of the Fuel Rationing Division that it is usual to suffer in silence or to decline an express invitation to complain if there is anything to complain about.

"The replies from the nineteen states and the District of Columbia, while frankly reporting some hardship cases and offering some adverse criticism, indicate clearly that, in the nearly unanimous judgment of the responding authorities, no impairment of public health resulted from rationing fuel oil, that ration order 11 needs only minor adjustment to satisfy all requirements of public health, and that such revision is not of sufficient gravity to warrant a general conference of public health officers. . . .

"The only point of difference between the conclusion we had already reached in the Fuel Rationing Division and the summary of these replies concerns the possibility that some deaths reported from Massachusetts and one death reported from New York may have been due to lack of fuel oil for heating purposes. Without full investigation the validity and degree of this difference cannot be determined accurately, but it is evident that such cases are highly exceptional and relatively few, even if they can be established.

"A recent canvass by Bristol of the physicians and health officers who assisted him in his original study indicate no general divergence of opinion from that expressed by the majority of health officers who replied to my letter. . . . ."

THE THIOCYANATES IN THE TREATMENT OF HYPERTENSION

Thiocyanates are capable under certain conditions of depressing blood pressure of hypertensive subjects. Initial dosage may vary from 5-15 gr. daily, administered as the sodium or potassium salt, in either liquid or tablet form, the latter being more convenient and perhaps less productive of nausea. Dosage must be controlled by suitably frequent determinations of the blood thiocyanate level, the objective being a concentration of 8-12 mg.%. The first blood estimate usually is made 1 week after institution of treatment, weekly thereafter until a constant therapeutic blood level is attained. When a therapeutic response is elicited with a satisfactory blood level, checks are made at intervals of 1-3 months. The quantity of drug necessary to maintain a therapeutic blood level varies considerably among patients, and may vary in the same patient depending on fluid balance, fluid intake, and physical activity. During the first few weeks of treatment with thiocyanates, many patients experience marked fatigue, somnolence and mental retardation, which disappear rapidly and spontaneously even though administration of the drug is continued or only decreased. — *Milton Mazier, M.D., and John A. Reisinger, M.D., Medical Bulletin of the Veterans' Administration.*

Order received by sergeant of the army motor pool:

Four trucks to Fort Brady Gym 7:30 tonight for hauling girls to dance.

The bodies must be cleaned and seats wiped off. All curtains in place. — *Journal American Medical Association.*

Friendly Enemies

A convoy was on its way to Russia under enemy observation for practically the whole of ten long Arctic summer days. Focke-Wulfs circled round only 100 feet up. Finally the officer got fed up with the Focke-Wulfs and sent them a signal: "You are making us dizzy. Please go the other way round."

The Germans promptly obeyed. — *News Chronicle* London.

Industrial Health

Committee On Industrial Health — Frederick W. Slobe, Chm., 2024 South Western Ave., Chicago, Frank P. Hammond, H. A. Vonachen, R. I. Barickman, C. O. Sappington, Milton H. Kronenberg.

REPORT OF COMMITTEE ON HEALTH PROGRAMS

At the 41st Annual Conference of the U. S. Public Health Service with the State and Territorial Health Officers, the Committee presented a rather extensive report. This Committee is composed of Drs. McCormack (Chairman), Dalton, Hill, Jakmauh, Rice, Scott, and Stricker.* All phases of health programs were discussed in this report, including that of industrial hygiene.

In connection with industrial health, the following recommendations were made:

"The Industrial Hygiene Bureau should survey and evaluate industrial health hazards in all plants.

"Potential exposures to toxic materials should be analyzed quantitatively to determine actual risk to the health of workers.

"Engineering services should be extended to all plants having hazards in order to secure control.

"Physicians should be stimulated to report all occupational diseases in order that investigation of the working environment may be made and corrective measures taken.

"The bureau should sponsor more and better plant medical departments and augmented nursing service within industry.

"The bureau should make available, through cooperation with other agencies, undergraduate and postgraduate study of industrial medicine.

"It should work in the closest harmony and spirit of cooperation with the committees on industrial health of the national, state and county medical societies.

"It should study occupational disease incidence and medical absenteeism recording and reporting and be able to make recommendations to industrial management.

"The bureau should be available at all times for consultative service to private physicians on occupational diseases.

"It should sponsor industrial programs on nutrition, venereal disease, dental services and the rehabilitation of sick or injured workmen.

"Special plant studies should be made on sanitation, illumination, heat and humidity, noise, shock and other causes of fatigue and recommendations made to management.

"A continuous and never ending educational program should be inaugurated to labor, to management and to the public to correct bad health, preserve good health and maintain industrial production, happiness and good will."

*McCormak, Arthur T.; Dalton, Charles F.; Hill, F. J.; Jakmauh, Paul J.; Rice, Thurman B.; Scott, James R.; Stricker, F. D.; Report of Committee on Health Programs, J. A. M. A. 122:672-675 (Jul. 3) 1943.

SUPPLEMENTARY VITAMINS

Drs. Barborka, Foltz, and Ivy in a recent article* discussed the relationship of the intake of the vitamin B complex and of the output in trained subjects. They state that factual evidence indicates that nutritional deficiency is prevalent in many parts of the country and that perhaps one-third of the American population is eating a diet which is not adequate in all respects. Their experiments were based on four students existing on a controlled, adequate diet and who had been trained on the bicycle ergometer for at least nine months; these subjects were then placed on a diet consisting principally of vitamin B complex. During the 82 days on the deficient diet, the subjects developed irritability, easy fatigability, lack of pep, anorexia, and increased leg pain during work periods; but they did not develop any objective signs of vitamin B deficiency. The urinary excretion of thiamine and riboflavin dropped to a low level, but the blood thiamine remained normal.

The authors conclude that diets deficient in vitamin B complex in trained subjects decrease the work output; that early mild states of mal-

*Barborka, Clifford J.; Foltz, Eliot E.; Evy, Andrew C.; Relationship between Vitamin B Complex Intake and Work Output in Trained Subjects, J. A. M. A. 122:717-720 (Jul. 10) 1943.

nutrition, with no objective evidence of deficiency disease, do prevent maximal work efficiency; that diets with about one-third of the recommended daily requirements of vitamin B complex produces objective symptoms of easy fatigue, irritability, lack of pep, anorexia, which symptoms disappear, with work output returned to normal or better within a few days following supplementation of vitamin B complex; and that vitamin B complex supplementation added to a vitamin B complex inadequate diet restores work output to efficient levels. Obviously, the use of natural foods to bring an inadequate diet to the required level is the ideal solution to the problem and official nutrition committees of organized medicine have stressed this fact; they have also decried the indiscriminate use of vitamins by the public. However, as long as the prevalence of inadequate diets of such a large number of workers in industry exists and until a nationwide plan of adequate diets becomes workable, discriminate vitamin administration to industrial workers on an inadequate diet is a sound policy.

"ARC FLASH" CONJUNCTIVITIS

Dr. Forrest E. Rieke, Medical Supervisor of the Oregon Shipbuilding Corporation and Kaiser Company, Inc., in his recent article discusses actinic conjunctivitis from electric welding arc.* This condition, though usually not severe, is very common, so a discussion concerning it is always timely. It is mistakenly assumed that this can occur from a single "flash", which is rare unless the individual is within a foot or two of the arc. Almost always the condition is an accumulated injury resulting from excessive exposure during several minutes or multiple exposures over a period of hours. The following treatment is advised:

"1. A darkened room or dark glasses.

2. Cold applications to the eyes.

3. A local anesthetic applied to the eyes; in watery solution while on the job and for immediate relief, in ointment base at night while attempting to sleep. The following are suggested: in water, pontocaine, butyn; in ointment, holocaine, metycaine, butyn.

4. A vasoconstricting drug such as ephedrine or epinephrine.

5. Occasionally 1 per cent homatropine to relieve iris spasm in severe cases.

6. A lubricant to relieve corneal drying — castor oil or lubricant base anesthetic.

7. Analgesics and sedatives in the very severe cases."

Preventative measures include:

"1. Protective devices have been employed; carbon type flash goggles with side guards, helmets, welding clothing, screens surrounding the welder at work.

2. Hazards have been explained through training classes, newspaper articles, labor union news sheet, shipyard magazine, safety pamphlets the like, and instruction in the methods of protection has been widely disseminated.

3. Ophthalmologists have been brought to the shipyards to instruct medical personnel in the diagnosis and care of eye injuries and diseases. They have also discussed the same problems in medical society meetings."

The author's summary is as follows:

"1. Actinic conjunctivitis, or arc flash, as seen in the Oregon Shipbuilding Corporation and the Kaiser Company, Inc., Portland, among 57,000 shipyard workers exposed at various times to the emanations from electric arc welding, is defined as a conjunctivitis caused by excessive exposure to the welder's electric arc and characterized by delayed onset, self-limited course of twenty-four hours, pronounced bulbar hyperemia, swelling of the lids, slight sunburn of the face, absence of discharge other than tears, extreme photophobia and a feeling of sand in the eyes.

2. Treatment is given for relief of symptoms through dark glasses, cold applications and the use of local anesthetic, vasoconstricting, mydriatic, lubricating and sedative preparations.

3. Prophylactic measures are outlined for the patient and his environment which can completely prevent occurrence of the injury."

*Journal of A. M. A., July 10, 1943.

HEALTH OF LEAD EXPOSED STORAGE BATTERY WORKERS*

"A study of 766 storage battery workers by Dreessen disclosed that 177 were affected by "early plumbism"; 168 of these had abnormal lead absorption and 9 incipient plumbism. Only 4 per cent of the men exposed to less that 0.75 mg. of lead per 10 cubic meters of air showed signs of abnormal absorption, whereas 54 per cent of those exposed to more than 3 mg. had early plumbism. There were no important time trends. Both blood and urinary lead values were higher in the affected workers. These values also increased with increasing atmospheric lead exposure. It appears that the more the blood or urinary lead values of an individual deviate from the range of unexposed persons the greater is the likelihood that such an individual will have other evidence of lead induced bodily changes. Reticulocyte, stipple cell and polychromatophilia values correlated generally with atmospheric lead concentrations and blood and urinary lead values. Therefore these hematologic

*Dreesen, W. C.: Journal of Industrial Hygiene and Toxicology, February, 1943 (as published in J. A. M. A., 122: 771-2 [July. 10] 1943).

determinations are apparently of value for the periodic appraisal of employees exposed to hazardous concentrations of lead. Albuminuria was twice as prevalent among the affected group as among the nonaffected workers. The greatest concentration of atmospheric lead occurred in pasting, oxide mixing, plate drying, plate finishing, plate repair, smelting and group assembly workrooms. Acutal exposure of workmen is variable and may be reduced by various engineering practices: enclosure, good housekeeping, wet methods, local exhaust, improved general ventilation and respiratory devices. Periodic inspection of employees by the physician is essential for detecting early cases of poisoning, for calling attention to deficient control measures and for impressing on the employee the value of washing the hands before eating and the wearing of respirators."

SHOCK DUE TO BURNS

Prinzemetal, Hechter, Margoles, and Feigen in a recent article described some interesting experimental work regarding the treatment of burn shock.* These experiments utilized 15,000 rats and mice in which the mortality was very significantly lowered by the use of commercial liver extracts. The crude liver extracts containing 15 injectable U.S.P. anti-anemia units were found to be the best. Their conclusions were as follows:

"1. There is a principle in liver which possesses the activity of combating shock due to burns.

2. This antishock factor present in some commercial liver extracts is not identical with the anti-anemia principle.

3. It appears that the liver principle effective against burn shock is not readily destroyed by heat or aeration and is precipitated from aqueous solution by acetone and ethanol.

4. Nine-tenths per cent solution of sodium chloride, when administered in amounts equivalent to 5 or 10 per cent of the body weight, is definitely effective against burn shock when given either after or thirty minutes prior to trauma.

5. Pretreatment with liver extract plus large amounts of 0.9 per cent solution of sodium chloride is significantly more effective than salt solution alone.

6. The liver factor described and large volumes of salt solution are the only agents which, in our hands, have been found to be effective in burn shock, adreno-cortical hormones, thiamine hydrochloride and other vitamins being without significant action. The renal pressor system likewise does not prolong the survival time of animals subjected to burn shock."

*Prinzmetal, Myron, M. D.; Hechter, Oscar, M. S.; Margoles, Clara, M. D.; Feigen, George, B. S.: A Principle from Liver Effective against Shock Due to Burns, J. A. M. A. 122:720-724 (Jul. 10) 1943.

The tuberculous person of the chronic pulmonary type in a quiescent state is safe to mingle with others provided there is assurance that no activation exists. Placement of such persons in well ventilated work rooms with medically controlled assignments requiring minimal physical effort is permissible. Many tuberculous persons employed in suitable jobs react favorably and do effective service under proper industrial medical supervision. Periodic X-ray examination, sputum analysis and clinical examination to safeguard patients and contacts are, of course, highly essential. Harvey Bartle, M.D., Jour. Amer. Med. Assn., Mar. 27, 1943.

The last world conflict sent tuberculosis rates soaring in the nations of Europe and brought about a slight rise even in this country. Today increases are noted throughout Europe. We hope to prevent an increase in this country. There is still time to lay down an effective barrage which could prevent rise due to the war. Although we have no apparent increase yet, the circumstances of overcrowding, unsanitary living conditions, and undue fatigue are striking apparent to everyone.

Tuberculosis strikes down the very individuals who are most valuable as war workers — men and women between the ages of 20 and 60. When protected from this disease, they are the human assets upon which the presumption of victory is based. When attacked by tuberculosis — and one per cent of our manpower is attacked — they become liabilities who perform their jobs inefficiently, join the rolls of the absenteeism club, and unwittingly, yet relentlessly, spread sickness to others.

Among the specific measures that can be taken to prevent a wartime rise in tuberculosis is mass chest X-ray examination of workers in war industries and families in war-industry communities.

Early discovery of tuberculosis is only the beginning of the story. There must be follow-up of all newly discovered cases, including after-care and rehabilitation of arrested cases that stay on the job after medical supervision, as well as active and infectious cases that require sanatorium care or outpatient ambulatory care during convalescence. C. M. Sharp, M.D., U.S. Pub. Health Service.

Liberty will not descend to a people; a people must raise themselves to liberty; it is a blessing that must be earned before it can be enjoyed.—*Abraham Cowley.*

MEDICAL EDUCATION FACILITIES FULLY MEETING WARTIME NEEDS

Number of Doctors, Excellently Trained, Being Graduated Is Largest In History, A.M.A. Council's Annual Report Shows

That the medical education facilities of the United States are fully meeting the wartime demands being placed on them is revealed in the forty-third annual presentation of educational data by the Council on Medical Education and Hospitals of the American Medical Association, published in the August 14 issue of *The Journal* of the Association.

The report says that the accelerated medical education program and increased enrolments in medical schools "are now producing excellently trained medical graduates for military and civilian needs in numbers far exceeding the production of doctors at any time in the history of this country. . . ."

Not only are the medical schools of the nation properly handling the increased enrolments, but improvements in curriculum also are being inaugurated. "Practically all schools," the report says, "report that, while the basic medical curriculum remains essentially unchanged, subjects of war significance are being stressed or have been added. The most commonly mentioned subjects in this category are Tropical Medicine and Parasitology, First Aid, Shock and Blood Substitutes, Burns and War Wounds, Venereal Diseases, Aviation Physiology and Medicine, Industrial Medicine, Public Health, Chemical Warfare, Military Medicine and Chemotherapy.

"Two generalizations may be made from scanning this list: First, the subjects are not limited to clinical topics of a purely 'practical' nature but involve a well material of basic scientific importance. Second, many of these subjects will continue to be of great medical importance after the war, so that these wartime additions to the curriculum are not simply necessary educational concessions to an emergency but will probably continue to justify their inclusion in our educational programs after the war. . . ."

The increased demands on medical schools are being met by faculties seriously depleted by the numbers who have entered the armed forces. Up to July 1, 1943, the seventy-six medical schools and schools of basic medical sciences in the United States had contributed 5,637 faculty members to the armed forces.

It is pointed out that at present virtually all medical schools in the United States are operating on an accelerated program, admitting a new class approximately every nine months and condensing the traditional four academic years of the medical curriculum into three calendar years by omitting summer vacations, without a reduction in total classroom, laboratory and clinic hours. The report states that there are now sixty-six approved medical schools in the United States. Between July 1, 1942 and the opening of the first academic session commencing in 1943, varying in different schools anywhere from January to July, there were 5,223 graduates. To this figure may be added the estimated 10,889 students who will graduate between the time of the opening of the first academic session in 1943 and January 1945. This will be an average of 6,445 graduates per calendar year, which far exceeds the number ever graduated from schools in the United States even at the time when one hundred and sixty schools were operating in 1905. "This figure," the report says, "is a conservative expression of the probabilities, since there will probably be an additional 4,500 graduates in the first six months after Jan. 1, 1945, totaling over 20,000 graduates in a period of exactly three years from July 1, 1942 to July 1, 1945, or nearly 7,000 a year. . . ."

Throughout the country freshman classes will enter one or more medical schools during every month from September 1943 to January 1945 with the sole exception of the month of December 1944. Dates of graduation will also be staggered throughout these months, with most of the students graduating in the months of December 1943 and September 1944, although some students will complete their work and be available for internships in every month of this period with the exception of the months of September 1943, May and November 1944 and January 1945. In this connection the report points out that students in all states of the Union as well as the District of Columbia, Alaska, Hawaii and Puerto Rico have now adjusted their licensure legislation or practices so that graduates under the accelerated medical program will be

eligible for admission to licensure, at least for the duration of the emergency.

In the seventy-six approved medical schools and schools of the basic medical sciences in the United States there were in the academic year ending with the admission of the first class in 1943, 22,631 students studying medicine, an increase of 600 or 2.7 per cent above the preceding academic session. The enrolment increase in Canadian schools was 2.0 per cent. In addition there were 566 fifth year students in schools of the United States plus 403 fifth year and 219 sixth year students in Canada.

Regarding internships in civilian hospitals approved for intern training, the report points out that in January 1943 these institutions could accommodate 7,959 interns whereas only 5,567 actually were on duty, a shortage of 2,392 interns. It is emphasized that in the face of this shortage it is becoming increasingly important that hospitals cooperate in maintaining an equitable distribution of interns by limiting appointments to actual minimum needs. A shortage is also reported in the numbers available for residencies, assistant residencies and fellowships.

In an editorial on medical education in wartime, appearing in the same issue of *The Journal*, it is pointed out that "It is encouraging to note that the stress of the accelerated program has not prevented depleted faculties from a critical scrutiny of past performance and planning for means to improve the presentation of that most complex of subjects, man, in health and in disease.

"Problems of postwar adjustments in medicine deserve inclusion in the undergraduate curriculum of more schools. How, if at all, is the practice of medicine likely to be different from that of the past? How may we arrive at a sound evaluation of the innumerable plans and proposed laws for improved medical care projected by lay and medical groups? These and related questions are being asked by medical students everywhere. A knowledge of the facts and analysis of the factors, forces and mechanisms at work, and the application of the searching scientific spirit which is the foundation of medical education, may lead more promptly to workable and acceptable methods."

In another editorial on premedical education, *The Journal* says:

"Acceleration in medical schools does not involve any basic change except the elimination of the long summer vacations. A significant increase in weekly work by the student is not required. The premedical programs, however, shorten the program mainly by a weekly increase in the quantity of work carried by the student. . . .

"Whether or not students will be able to carry this heavy load remains to be seen. These students will, however, be free from financial worries and the necessity for outside employment. They will receive medical care, and more attention will be paid to the students' physical condition.

"The results of this experiment in concentrated premedical education will be watched with interest by all who are concerned with preprofessional education in every field, since it may offer a solution of the problem of reducing the long years of training required by the learned and scientific professions. . . ."

Discussing "The Supply of Physicians," *The Journal* says that "More than 4,000 seniors who entered the accelerated medical education program over a year ago are now well into their intern year and will complete that training before March 31, 1944. They will thus become available for military and civilian practice three months earlier than in normal times. Even half of these, should only that small proportion be commissioned, can care medically for over 300,000 troops. If this number of men is thereby enabled to enter active service three months early, before April of next year, the accelerated program will have justified itself in supplying the men required. . . ."

Postwar medical educational facilities are not being ignored. *The Journal* says that "Recognizing that large numbers of physicians will be seeking advanced training immediately after the war, the Council on Medical Education and Hospitals is making a careful study of the educational facilities in the graduate and postgraduate fields. A preliminary survey has already been instituted to determine what institutions and agencies will be able to expand their regular educational activities to meet additional postwar

needs. . . . The large number of physicians who return to civilian life will likewise find that the medical profession, the schools and the hospitals stand ready to meet the educational needs of the postwar period."

ABSORPTION DATA ON SOLVENTS WILL HELP INDUSTRY PROTECT WORKERS

Whether a new solvent used in a manufacturing process is largely absorbed (metabolized) by the body fluids and then eliminated principally through the urine like alcohol or is excreted by breath like ethyl ether should be determined and the rate of absorption and excretion defined, *The Journal of the American Medical Association* for May 22 advises in an editorial. "Such figures," *The Journal* says, "enable industry to set safe concentration limits in the air of workrooms, a point of the greatest importance in industrial medicine."

In its discussion of "Industrial Solvents," *The Journal* says:

"Most important in the field of industrial toxicology is the rapid development of new solvents for use in a variety of manufacturing processes. Many of these solvents were chemical curiosities a few years ago; now they are sold in carboy or even tank car lots. Inevitably the medical profession is consulted as to the possible harmful effects of using solvents and especially from breathing them.

"Possible dangers from the use of these new chemicals are appreciated by the chemical industry. Manufacturers often establish research fellowships or special contractual arrangements with universities such as Pennsylvania, Harvard and Cincinnati, with specially qualified institutions such as the Saranac Laboratories and the Industrial Hygiene Foundation and with private consultants. Some manufacturers have well equipped laboratories of their own and staffs of specialists whose sole work concerns the industrial toxicology of their own products. The industrial hygiene laboratories of the Public Health Services at Bethesda, Md., are publishing an ever increasing volume of fundamental researches on industrial toxicology which are of the utmost importance to industry.

"With this new information it is surprising that there has not been more interest in one of the fundamental problems of industrial toxicology — how much of some particular solvent is absorbed by a man exposed under definite conditions and how rapidly he excretes it when exposure ceases. . . .

"In the paper by R. W. McKee and others [in the May 22 issue of *The Journal*] analogous studies with carbon disulfide are described. . . . Carbon disulfide is absorbed largely by inhalation; the time required to produce saturation of the blood depends entirely on the concentration in the air breathed and is proportionally longer for higher air concentrations. The major part of the absorption of carbon disulfide at the low concentrations such as one encounters in industry takes place in the first thirty minutes, although complete saturation of all body tissues probably takes somewhat longer. Elimination by exhalation follows the same principles, but a considerable portion of the vapor is metabolized, which probably accounts for its recognized toxicity. . ."

IMPLANTING SULFONAMIDE POWDER IN CLEAN OPERATIVE WOUNDS

In view of the favorable results obtained in more than 600 consecutive cases which he reports in *The Journal of the American Medical Association* for August 7, J. Albert Key, M.D., St. Louis, says that "I believe that the practice of implanting sulfonamide powder in clean operative wounds should become routine in all civilian and military hospitals. This is especially true at this time when, owing to the emergency resulting from the war, so much surgery must be done under abnormal conditions and the incidence of operative infection may be expected to be unusually high."

PELVIC PAIN

A growing tumor, incarcerated in the pelvis, may produce pressure pain, as may small uterine fibromyomas, strategically situated. Non-adherent cysts and pedunculated fibromyomas, however, commonly rise from the pelvis with growth and may obtain huge proportions without causing more than mild sensations of weight and pressure. It is extremely doubtful that the freely, movable, normally sized retroverted uterus contributes much, if any, pressure pain.—*Mengert, South, M. J. April* '43.

PHYSICIANS ON STRIKE IN THE NETHERLANDS

Reliable sources reported on April 28 that when a number of Dutch physicians were placed in "detention" for issuing certificates declaring patients physically unfit for guard duty ordered after sabotage had taken place, their colleagues went on strike. All doctors suspended office hours, accepted only urgent cases for treatment, referred accident cases to the municipal authorities, had their wives inform patients that interference on the part of the authorities prevented the doctors from rendering medical assistance, and asked physicians in neighboring towns not to take their places. The release of the arrested doctors followed quickly.

In another instance a doctor was imprisoned for refusing to violate the medical code by giving information about a patient to a layman. The other doctors in town immediately posted the following notice: "No consulting hours. A colleague has been imprisoned because he rightly refused to inform an unauthorized outsider about the illness of a patient. As long as this illegal detention lasts, other physicians cannot practice." The doctor was released within two days.

The physicians have warned the mayors that they held the authorities responsible for endangering public health, that they accepted the release of their colleagues as meaning that there would be no repetition of such arrests, and that if there were new arrests these would not have the slightest effect on their professional attitude. The doctors have also agreed not to fill out any forms, however innocent the source might appear, if these seemed likely to aid the authorities in collecting data about physicians.

The Stockholm *Svenska Dagbladet* reported that more than 4,000 physicians, or 97 per cent of the membership, stopped practicing rather than become members of the Dutch Nazi Physicians Chamber. When, however, dues for the organization were deducted from fees owed them by the health insurance funds, the physicians countered by refusing to perform any services for the funds. The German authorities answered by threatening to impose heavy fines on those failing to treat patients sent by the funds, but physicians removed their name plates and suspended all practice save for treatment of emergency cases. Eventually the authorities were compelled to allow the doctors to practice without membership in the Physicians Chamber.

In March issue of the Netherlands underground paper, a physician described the attempts of German authorities to nazify the physicians:

"Soon after the occupation of the Netherlands German 'specialists' on organization of the medical profession were sent into the country to advise Dutch Nazis on use of existing medical societies as vehicles for infiltrating the profession with national socialist medical doctrines. The executive committee of the Netherlands Medical Society used every possible means to preserve the integrity of the organization, and when they realized that Nazi control could no longer be avoided, they resigned. Local branches of the society immediately declared their independence of the national organization, which consequently folded up. The Dutch Nazi Party then instituted a 'Physicians Chamber,' proclaiming every Dutch doctor automatically a member. The immediate reaction was that a number of prominent physicians contacted trusted colleagues throughout the country for the purpose of frustrating the Nazis' designs. Their first step was to send a letter to Reichs Commissioner Arthur Seyss-Inquart telling him that the medical profession would have no dealings with the Physicians Chamber or its works. The Germans proceeded with the organization of the chamber and declared every licensed practitioner a member. The chamber continues as more of an irritation than a functioning entity, as it is largely ignored by the physicians."

The sergeant had his troubles with one of the new recruits. The more the sergeant shouted at him the more blandly unconcerned was the recruit.

"Doesn't anything I say make any difference?" demanded the sergeant.

"No," said the recruit. "I was a baseball umpire in civil life."

—*Christian Science Monitor.*

"Mother, may I keep a diary?"

"Of course."

"And may I do the things to write in it?"

—*Meccano Magazine.*

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Lt. Henry B. Okner has recently been awarded the medal of the purple heart. He was wounded in line of duty when his ambulance struck a land mine. He was stationed in Northern Ireland for six months and was then sent to Northern Africa where he saw active combat duty serving with a reconnaissance unit in the African campaign.

The Peoria Medical Society in an effort to keep in close touch with those of its members who are serving their country at home and abroad, have begun a "Service Department" in their monthly publication, PEORIA MEDICAL NEWS.

The Project Manager of the War Manpower Commission, National Youth Administration at Mattoon has sent the following message to the Educational Committee — "Periodically we have been receiving your fine duplicated bulletin regarding common maladies and diseases. This has served to enlighten hundreds of boys who have lived in residence here during their training in War Production Training.

"However, with the closing of the National Youth Administration nationally, this Center too, has been closed, and we are therefore writing to ask that the mailing of this bulletin be discontinued. Thank you sincerely for this fine service which you have extended to us."

MARRIAGES

First Lt. Leon S. Eisenman, formerly of Chicago, to Miss Ida Sibyl Weinstein of Old Orchard Beach, Maine and St. Augustine, Fla.

Joseph W. Krystosek to Miss Josephine Lobacz, both of Chicago, July 11.

DEATHS

Samuel C. Beach, Chicago; Rush Medical College, 1892. Was consultant and industrial medical inspector of the Division of Industrial Hygiene of Illinois. Died July 7, 1943 at the age of 73.

Harry S. Bossart, Buckley; Jefferson Medical College of Philadelphia, 1886. Practiced medicine in Buckley for over 50 years. Was mayor for 26 years. Died August 15, 1943 at the age of 78.

Abe A. Hyman, formerly of Chicago; Loyola University School of Medicine, 1938. Killed in an accident while serving in the armed forces.

John William Krohn, Joliet; Hahnemann Medical College and Hospital, 1912. Served as a captain in World War I. Died of pnuemonia August 21, 1943, at the age of 52.

Gustav Liebrecht, Chicago; National Medical University, Chicago, 1906. Died July 26, 1943 at the age of 72.

Richard J. O'Connell, Chicago; Rush Medical College, 1899, associate in medicine at Loyola University School of Medicine from 1917 to 1924. On staff of West Side and St. Francis' Hospitals. Died August 22, 1943 at the age of 73.

Charles H. Reinhart, Chicago; University of Illinois College of Medicine, 1915. Died July 25, 1943 at the age of 52.

Francis M. Roberts, Jacksonville; Cincinnati College of Medicine and Surgery, 1900. Superintendent of Oaklawn Sanatorium for two years. Had practiced medicine in Morgan County for 43 years. Died August 6, 1943 at Passavant Memorial Hospital, at the age of 73.

John W. Robertson, Coulterville; Beaumont Medical College, St. Louis, 1889. Was a member of the "Fifty Year Club" of the Illinois State Medical Society. Killed when his automobile was hit by a train July 26, 1943 at the age of 83.

BELIEVE SODIUM CARBONATE SHOULD BE GIVEN WHEN SULFADIAZINE IS USED

The findings of laboratory and clinical studies made by Dorothy Rourke Gilligan, M.S.; Solomon Garb, A.B.; Charles Wheeler, M.D., and Major Norman Plummer, M.C., A.U.S., New York, lead them to report in *The Journal of the American Medical Association* for August 21 that kidney damage and obstruction of the urinary tract as a result of treatment with sulfadiazine and acetylsulfadiazine are preventable by means of alkali treatment sufficient to maintain the urine neutral or slightly alkaline. They believe that sodium bicarbonate should be prescribed whenever sulfadiazine is administered.

NEW DISEASE ENTITY REPORTED BY 3 ARMY MEDICAL OFFICERS

Bullis Fever Apparently Is Transmitted By The Lone Star Tick; Is Self Limited In Most Cases And Confers Immunity

A new disease entity heretofore undescribed, which they term Bullis fever, apparently transmitted by a tick, is reported in *The Journal of the American Medical Association* for August 21 by Colonel John C. Woodland, Major Mordecai M. McDowell and Captain John T. Richards, Medical Corps, Army of the United States.

The disease was first recognized in the spring and summer of 1942 at the Brooke General Hospital, Fort Sam Houston, Texas. It is self limited in most instances and apparently confers immunity on those contracting it, since no recurrences have been observed.

The onset of the disease usually was abrupt with an initial chill or chilly sensation ushering in the attack. Fever soon followed. A great majority of the men complained of headache. There was a pronounced lassitude, prostration, loss of appetite and general weakness during the fever stage of the disease and a few patients were nauseated and vomited. The fever lasted from four to fourteen days and in the average case the temperature was elevated for a little over five days. Convalescence was protracted, especially if the illness had been severe. There was loss of weight in a great many of the men. In the more severe forms of the disease a rash, resembling German measles and at times typhus, made its appearance early in the disease but disappeared within forty-eight hours. In about 10 per cent of the cases skin manifestations developed. From clinical observation, the authors report, it is apparent that the incubation period of the disease is from seven to ten days.

The disease resembles in some respects cases of Colorado tick fever but also might be confused with other disease conditions, such as malaria.

All of the men in the cases reported by the authors gave a history of repeated and prolonged exposure to bites by a tick commonly known as the Lone Star tick, so named because of the star shaped mark on its back. Although no positive evidence of the association of bites by the Lone Star tick with this disease has been established, the authors say, it is their opinion that further laboratory investigation will prove that this disease is transmitted to man through the tick bite.

Glasses, if properly fitted and adjusted, never create any defect or weakness of the eyes or cause the muscles to deteriorate from nonuse, the late John Oliver McReynolds, M.D., Dallas, Texas, contends in *Hygeia, The Health Magazine*. "They simply supply the deficiency already existing, and the muscles still have their normal work to do," he says.

Now more than at any other time, because of the pressure of work, longer hours, and crowded and unsatisfactory living conditions, there is reason for extra precaution so far as tuberculous infection is concerned, both in large and small industries. Many individuals will have to be employed whose health is sub-standard and who should be considered more susceptible to such infection. Therefore, there should be more effort made to extend and maintain proper health supervision, especially in regard to the detection and control of tuberculosis. W. A. Sawyer, M.D., N.Y.S. Jour. of Med., Jan. 15, 1943.

Early detection of tuberculosis is not enough. There must be adequate institutional accommodation for those who need it; reasonable maintenance for the family whose wage-earner is undergoing treatment and a wisely planned scheme of rehabilitation are recognized as an essential part of treatment itself. Sir Wilson Jameson. Lancet. Oct. 24, 1942.

Children have more need of models than of critics. — Joubert.

P. R. N.

The Jocular Jingles of C. G. F.

by

Charles G. Farnum M. D.

Peoria, Ill.

SEASONABLE SONNETS
SEPTEMBER

With gorgeous days and night so keen and cool
September makes our life again worth while;
With halting step the children trudge to school,
While we with autumn zest can work and smile.
The great misnomer, Labor Day, is here,
When no one works — in keeping with the times;
Red sprigs of sumac here and there appear,
Birds migrate now in flocks to southern climes.
To campuses the college youth return,
The chosen ones to drink from learning's cup;
But minds are less intent on what they learn
Than how the back field squad is shaping up.
Though days are warm each evening brings its chills
With thoughts of winter clothes and fuel bills.

The Prayer of the Ancient Golfer

I do not ask for energy of youth,
For long straight shots and graceful rhythmic swing,
I'll be content with ancient ways uncouth
And take whatever awkward methods bring.

I do not ask to shoot the course in fours,
I'm willing to be mediocre — but,
I pray, ye gods of all the great out doors,
For just one afternoon when I can putt.

Here Comes The Groom

On last Thursday evening Mr. Oscar Willie Cox, eldest son of Mr. and Mrs. James Cox of Main Street, bridegroom of Miss Norma Brown at one of the largest and most exclusive social gatherings in the history of our community.

The bridegroom was charmingly clad in a dark, three-piece ensemble consisting of coat, pants and vest.

The coat of this dark material was tastefully gathered under the arms and draped over the shoulders, falling in simple lines to the hips. It is whispered that this coat is an heirloom in the family having been worn by his father and his grandfather on their wedding days.

The vest was sleeveless and met in front, held by buttons of the same color. It was gracefully fashioned with four pockets and drawn in by a strap and buckle at the back.

The groom's pants were of the same dark material and were suspended from the waist, falling in straight lines almost to the floor. The severe simplicity of the garment was relieved by the right trouser cuff which was caught up by the Boston garter worn underneath, revealing a brown sock above a shoe of black calf skin laced with strings of the same color. The effect was quite chic.

His neck was encircled by white collar with long points and a delicate saw edge which had a tendency to intensify the contrast between its snowy whiteness and his mahogany complexion. The sleeves were worn long, exposing about four inches of cuff. Around the collar a cravat was knotted loosely and in such a manner that it rode upward in the general direction of the left ear.

He wore his hair parted on the left side and all was held severely in place by hair-gloss except for an aigrette effect at the rear end of the part. This gave a naiveness to his coiffure that was delightful. Mr. Cox wore no hat at the ceremony.

Miss Brown wore the conventional white.

Anon.

PATHOLOGICAL SONNETS
HAY FEVER

The summer flowers are blooming on the hills,
On roadsides grass and weeds have reached their prime;
The wayside vegetation wholly fills
The atmosphere with pollen is a crime.
Therefrom my eyes become a firey red,
My weeping interspersed with vicious sneeze.
I have a leaky nose and aching head
From molds and pollen wafted by the breeze.
I cough without cessation through the night.
I weep and blow and wheeze. 'Tis worse than pain.
I hoped desensitizing hypos might
Bring some relief. The hope was all in vain.
The most effective treatment is to pray
For killing frosts to freeze the thing away.

We are told of the poor and downtrodden,
As each pleas for his place in the sun,
And we thrill with a keen satisfaction
When a thing of that sort has been done.

For a place in the sun is a birthright,
Such a place for each one should be made;
But when temperatures soar in the hundreds,
You can give me a place in the shade.

Professor Paresis meekly reminds us that today is the tomorrow that we worried about yesterday.